Attachment 13.01

Metering

31 January 2023

PowerWater

Contents

Abbreviations

The following table provides a list of abbreviations and acronyms used throughout this document. Defined terms are identified in this document by capitals.

Term	Definition
ACS	Alternative Control Service
AER	Australian Energy Regulator
CT	Current Transformer
ENA	Energy Networks Australia
HV	High Voltage
ICT	Information and Communications Technology
LCD	Liquid Crystal Display
LV	Low Voltage
NEM	National Electricity Market
NER	National Electricity Rules
NT	Northern Territory
RAB	Regulated Asset Base
VT	Voltage Transformers

Overview

For the 2024-29 regulatory period, we propose to continue replacing end-of-life meters with smart meters, as well as installing smart meters for all new connections. Developing an expansive smart meter fleet will allow our customers to continue to install distributed energy resources such as rooftop solar and batteries, while enabling innovative tariff setting and better asset management. It will also address the condition, accuracy and reliability issues with our current metering fleet.

Metering for type one to six meters is an alternative control service (**ACS**)[1] whereby we identify an individual charge for the service separate to standard control services. This means metering revenue, capex and opex are determined separately to all other network services, and meters form their own asset base.

Our forecast revenue and costs assume we will retain responsibility for metering in the Territory for the next regulatory period. Our proposal is consistent with the Australian Energy Regulator's (**AER**) decision to retain a price cap for metering services.

Over the next period we plan to recover $64.9 million[2] of revenue from metering customers. This will allow us to invest $41.5 million of capital in metering assets, and $33.5 million to operate and maintain our meter population, read the meters, and provide metering coordination and data management services.

There are approximately 87,500 'billing meters' in our network, and 24.9 per cent of these will be over 30 years old by 2024 (if there were no meter replacements in the next two years). This is well beyond the 15-year technical design life for electronic and smart meters, and over the 25-30-year technical design life for mechanical meters (see Figure OV.1).

1 Metering for type seven meters is covered as a standard control service.

2 All dollar values in this Attachment are in real 2024 terms.

Figure OV.1: Existing meter population by age, at June 2024

Note: This is the population at June 2022 with the ages moved to 2024. It does not take into account meters that will be replaced in the last two years of the current period.

Whilst a range of factors contribute to meter accuracy and performance (for example location and meter type), meter age is a reasonable indicator. Generally speaking, the further a meter gets beyond its technical design life, the more it becomes prone to measurement errors, which results in inaccurate billing and non-compliance with national measurement requirements. It is therefore important to periodically test our meters and replace meters deemed as non-compliant.

During the current regulatory period we continued to install smart meters for new connections and replacement meters. Smart meters have become the standard across the industry[3], and offer a range of potential benefits including better data, better outage management, and billing equity. The cost of smart meters has fallen dramatically over the past decade, and smart meters are generally easier to source than traditional mechanical meters. It therefore made sense to start making the progressive age-based switch to smart metering.

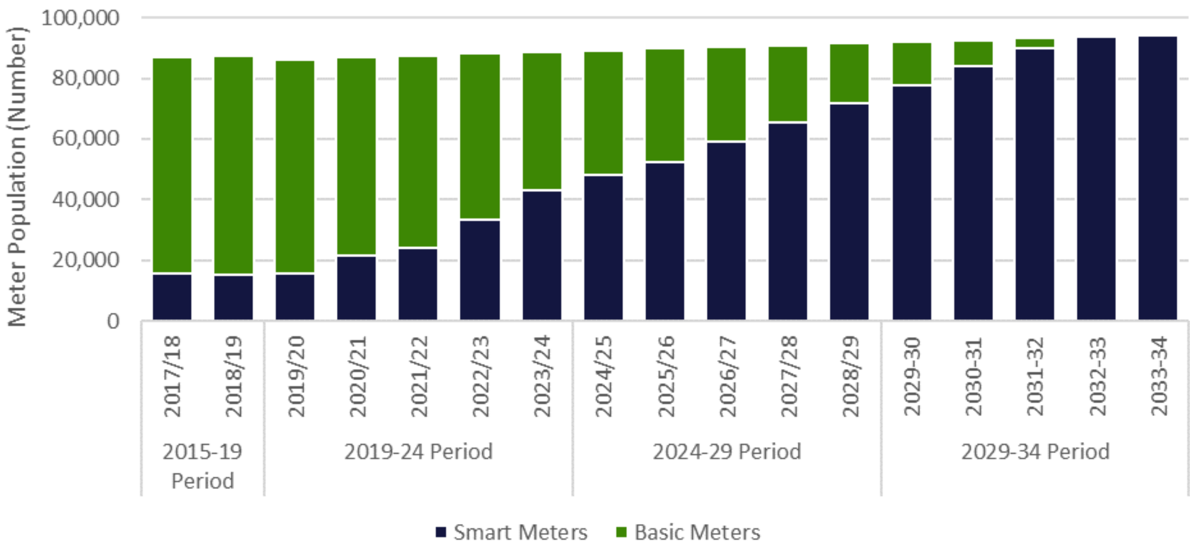
3 In November 2022, the Australian Energy Market Commission (**AEMC**) put forward a recommendation for a 100 per cent uptake of smart meters by 2030 as part of a suite of reforms putting customers at the heart of the transition to net zero (see: https://www.aemc.gov.au/news-centre/media-releases/metering-review-smarter-energy-future).

In its 2019-24 determination, the AER approved our new and replacement metering program – using smart meters – and we intend to continue this activity over the course of 2024-29, and the following period (2029-34).

By the end of the current period (June 2024), we expect around half of our meter population (43,300 meters) will be smart meters. In the next regulatory period, we estimate we will install a further 24,600 smart meters by replacing end-of-life, faulty or failed meters, as well as another 2,810 smart meters for new connections. The balance of around 20,000 non-smart meters will be replaced with smart meters during the following regulatory period (2029-34).

Three of our major network users said they support a fast-tracked roll out of smart meters.

Figure OV.2: Meter replacement volumes over time



We considered both a faster and a slower replacement program for our aged meter population prior to putting this proposal forward. We believe what we have proposed represents the best balance between the benefits and costs of the program. We have a program that is deliverable, minimises the need to ramp-up our workforce, and most importantly, smooths the impact on tariffs over time.

The Metering Asset Management Strategy included with this Regulatory Proposal is consistent with that presented to customers in our August 2022 Draft Plan, and the People's Panels, which received broad support from customer groups (see Attachments 1.01, 1.02 and 1.03).

While there is a step increase in the applicable tariffs of 33.9 per cent in the first year of the period, this is primarily driven by the fact incorrect meter numbers were used to set prices in the current period. The other driver is the 38.5 per cent increase in our metering asset base resulting from the increase in asset replacements as we continue our proactive replacement program for end of life meters. We have developed tariffs such that the main increase is in the first year of the next regulatory period, with increases of only 4.9 per cent per year across the remainder of the period.

1. Our services

In the 2024-29 regulatory period, we will continue to provide meters, read meters, and coordinate and provide meter data services. Consistent with the AER's Framework and Approach decision, our type one to six metering services are classified as alternative control services and are subject to a price cap. Type seven metering services are standard control services.

Our proposal assumes we will retain responsibility for metering for the duration of the next regulatory period.

1.1 Service description

We have adopted the following descriptions of metering services from the AER's Draft Proposed Service Classification and chapter 7A of the Northern Territory (**NT**) National Electricity Rules (**NER**):

- Metering coordinator.
- Metering provider, including providing, installing, maintaining, inspecting, replacing, recovery and disposal, and testing meters.
- Meter reading, including scheduled and some special meter reads (e.g. Power and Water requested special reads).
- Meter data services, including collection, processing, management, delivery and storage of metering data.

1.2 Service categorisation

We propose to change the way our metering services are currently categorised to allocate costs in a more cost-reflective way. Specifically, we have separated:

- Low voltage (**LV**) current transformer (**CT**) metering services, as they have higher installation and ongoing asset management costs compared to standard metering.
- High voltage (**HV**) metering services, as they have significantly higher installation and ongoing asset management costs compared to LV CT metering.

We will continue to provide the same suite of customer requested fee-based metering charges, including customer requested provision of additional metering/consumption data where we charge for data beyond the standard provision for retail billing purposes. More information is provided in Attachment 13.10

Our proposed changes to metering services are summarised in Table 1.1.

Table 1.1: Proposed change to categorisation of metering services

Metering service	2019–24 categorisation	2024–29 categorisation
Single phase direct connected meters	Single Phase	Single Phase
Three phase direct connected meters	Three Phase	Three Phase
LV CT metering	Three Phase and Metering Dedicated CTs and Voltage transformers (**VT**) - Remote read	LV CT
HV metering	Metering Dedicated CTs and VTs - Remote read	HV metering

2. Our customer and stakeholder feedback

Our customers and stakeholders support the installation of smart meters. They acknowledge the benefits of accurate and reliable metering services, and support the improved services that smart meters provide.

Our retailers would support a faster move to smart maters across our networks. Aligned with this, we plan to continue installing smart meters at an accelerated rate, albeit with a view to moderating the impact on prices.

2.1 Customer feedback on the Draft Plan

Customer engagement throughout the early part of 2022 was fed into our August 2022 Draft Plan. We have since tested that Draft Plan with stakeholder and customer groups, as well as via written submissions received in response to the plan.

The feedback received on the Draft Plan has heavily influenced our Regulatory Proposal. Our customers' views, along with the changing economic environment since August has helped sharpen our focus on some of the material issues for the next regulatory period.

Table 2.1 shows the feedback we received in response to the Draft Plan, and how we propose to address it.

Table 2.1: Feedback on our Draft Plan

What we heard	What we are doing
The performance of our meter readers was not at an acceptable standard.	We are working closely with our meter reading contractors to improve our level of service and customer outcomes.
The continuing program to install smart meters was seen as important to enable both our business and our customers to leverage new technologies such as solar and batteries, and in supporting tariff reform and the ability to send pricing signals to customers around peak demand. Our industry partners in the generation and retail sectors (including both major NT retailers, Jacana and Rimfire) particularly supported this program.	We will continue to install smart meters as standard, and propose to continue our replacement program at a sustainable level.
Investment in the future, rather than locking ourselves into old ways of doing things, was important.	We have ensured our metering fleet can deliver the engineering data to support the energy system of the future. For example, we have identified and tested a suite of initiatives that will help us manage and optimise renewable energy for the benefit of all customers.
Modern ICT systems, while necessary, needed to provide value for money and be cognisant of affordability impacts on customers.	We have selected projects with the highest benefits, together with customising the scope of the ICT systems to fit our small network, to ensure our expenditure is prudent.

2.2 Preferences for smart meters

2.2.1 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.

2.2.2 Energy Networks Australia (ENA)

Extensive penetration of smart meters is a fundamental assumption of the ENA's *'Electricity Network Transformation Roadmap'.*

The Roadmap was developed through a two-year work program involving hundreds of stakeholders, an evidence base of 19 expert reports and unprecedented analysis of energy system outcomes to 2050. It focuses on incentivising efficiency and innovation in the electricity industry. The ENA highlights that investment in advanced metering is required to:

- Support reforms to pricing (including ensuring a fair system of prices).
- Facilitate other benefits such as remote sensing and network operations.

2.2.3 Australian Energy Market Commission

The AEMC is currently conducting a review of the regulatory framework for metering services. As part of this review it has recognised that smart meters enable a more connected, modern, and efficient energy system that supports future technologies, services and innovation. A cost-benefit analysis undertaken by an independent consultant, Oakley Greenwood, finds that the estimated net benefit of smart meters is between $54 million (South Australia) and $256 million (New South Wales).

Potential benefits are cited as:

- Reduced costs for routine meter reading and special reads.
- The reduction in meter installation costs due to the scale economies of undertaking a rollout geographically.
- The ability to de-energise and re-energise the premise remotely.
- Potential reductions in electricity supply costs due to the ability to deliver more cost-reflective tariffs.
- The ability to restore supply more quickly after unplanned outages.
- Providing the technical basis and means for accessing intelligent electricity system platforms, thereby accelerating their development and the benefits they can provide to customers.
- Accelerating innovation and uptake of new energy services, such as home energy efficiency and energy management, eMobility, demand-side flexibility services, and distributed energy resources (**DER**) integration and optimisation.
- Potentially bringing forward a tipping point in technology competitiveness, consumer preference, and investor confidence resulting in a more competitive two-sided market.

Based on these benefits, the AEMC has undertaken to work with stakeholders to develop a package of measures to accelerate the deployment of smart meters in the National Electricity Market (**NEM**). Nearly 60 stakeholders provided written submissions in response to the AEMC's proposed measures, with a majority of stakeholders supporting a higher penetration of smart meters in the NEM. The AEMC noted that many stakeholders expressed a need to have clear policy direction on measures that could support a faster and more efficient deployment of smart meters.

3. Current performance

We are on a pathway to improve the safety, accuracy and efficiency of our metering services in line with stakeholder and customer expectations.

In this period, we expect to replace or upgrade a number of older meters, resulting in around half of our meter fleet being smart meters by the end of the period. We will replace more than 21,200 end-of-life meters with our standard smart meters and connect a further 2,784 customers. We will also replace out of date communications equipment and remediate around 2,800 asbestos panels.

3.1 Our meter fleet

We have around 105,000 meters across our networks. However, around 87,500 of these are 'billing meters'. The breakdown is as follows:

- Approximately 76,100 or 87.0 per cent, are single phase connections with a single meter.
- Approximately 2,260 are for LV CTs and HV sites.
- Approximately 9,100 three phase metering connections (not categorised as LV CT or HV):
  - Around half of these have a single three phase meter.
  - The other half have three single phase meters – one physical meter for each of the three phases connected to a single customer. These are treated as a single billing meter.

The three single meters supplying one customer scenario is a solution used for lightening prone areas in the Territory, which helps mitigate the risks of inaccurate billing should lightning strikes stop one phase registering, a common problem with three phase mechanical meters.

An example is shown in Figure 3.1.

The change to reflect the number of billing meters (rather than physical meters) for the purposes of determining our metering prices was made in 2021 following a review of our metering asset base. As part of this review, we cleansed our data and more accurately captured the instances where multiple meters are installed to supply one customer. Cases such as these had historically, artificially inflated our asset base, significantly affecting our ability to be able to recover our costs. The adjustment to use the number of billing meters will address this problem to ensure we are able to recover our efficient cost of providing metering services.

Figure 3.1: Example of three single phase meters

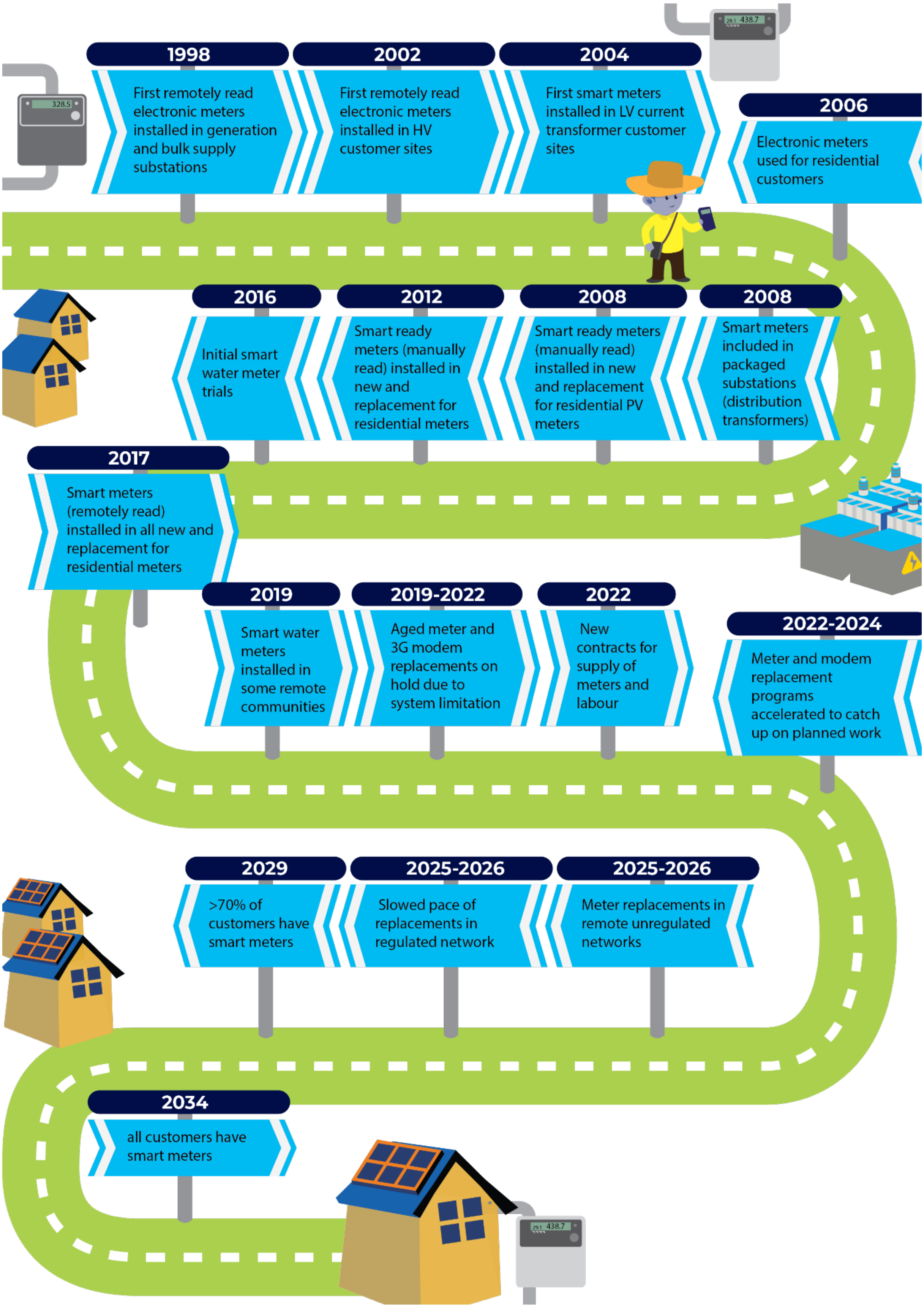
It should be highlighted that we are also responsible for around 14,000 meters in our remote and unregulated network. This population of meters has faced the same under investment issues as the regulated meters over the past 15 years and has now reached a critical point around reliability and accuracy. While the costs associated with these meters do not form part of our Regulatory Proposal, our works program takes these into consideration to ensure we are able to resource and deliver our metering program in full.

Of our 87,500 billing meters:

- Around 24,000 are smart meters. Not all of these smart meters are operating on the 4G network – we have programmed around 6,500 to be upgraded from 3G to 4G by 2024.
- Around 5,000 are second-generation electronic meters which can be upgraded to smart meters via the installation of a modem – we have a program in place to progressively address this.
- Around 6,500 are second-generation electronic meters which are unsuitable to be upgraded to smart meters.
- The remainder (approximately 52,000) are older, mechanical meters or first-generation electronic meters.

Figure 3.2 shows our progressive move to smart metering in the Northern Territory.

Figure 3.2: Our smart metering journey



3.2 Our current period metering program

On the back of a review in 2012 which highlighted a growing problem with our ageing meters, we started proactively managing our meter fleet. This meant we increased our expenditure (capex and opex) on metering services significantly in the 2014-19 period. We focussed on those customers most affected by unreliable and inaccurate metering – our higher-use, large customers. The capital expenditure (capex) incurred in the previous period was reflective of a partial ‘catch up’ for unsustainable under investment in the previous years. We leveraged this increase in meter replacements, implementing a policy to install smart ready meters (smart meters without a communications device or modem) for all new and replacement meters with a view to:

- Minimising the cost of any future move to smart metering, noting the cost of smart capable meters was comparable to mechanical meters.
- Operating our existing information and communications technology (**ICT**) systems to end of life, meaning the data able to be provided by smart meters was unable to be used by the business at this point.

In the current regulatory period, we sought another significant increase in expenditure to continue replacing those meter populations that are beyond their operational life.

Despite a later than forecast start to the metering program, we expect to deliver it in full by the end of the current period. This includes:

- Replacing end of life mechanical and old electronic meters with smart meters, increasing our smart meter population by around 21,200.
- Connecting 2,784 new customers to the network.
- Replacing the 3G modems on existing smart meters before the 3G network scheduled decommissioning in 2024.
- Installing communications on a number of smart capable, but not yet enabled meters.
- Remediating around 2,800 asbestos meter panels.

We have spent $9.3 million of capex in the first three years, and estimate we will spend another $25.6 million in the next two years. This will deliver the proposed program in its entirety, at a slightly higher cost than the $31.2 million included in the allowance[4].

Our planned smart meter installation program was paused at the beginning of the current period, as we identified our existing ICT systems were not able to process and store the huge uplift of data volumes produced by smart meters. We are in the process of installing the necessary back-end metering, billing and market systems to cope with the increased scale of data. With these constraints now being addressed, we have started to ramp up our delivery capacity to achieve the planned volumes.

[4] In 2021/22, we improved our overhead cost allocation approach, which resulted in more costs being directly charged to opex activities and capex projects. This affected ACS categories as well as SCS categories. More information on this change is provided in section 9.02 of our Regulatory Proposal and Attachment 9.01.

We expect an additional 16,700 metering points to be replaced with (or upgraded to) smart meters prior to the end of the current regulatory period, either as part of our replacement program for old meters, our upgrade program for electronic meters, or due to failures or solar-required upgrades. This represents an acceleration of past replacements rates.

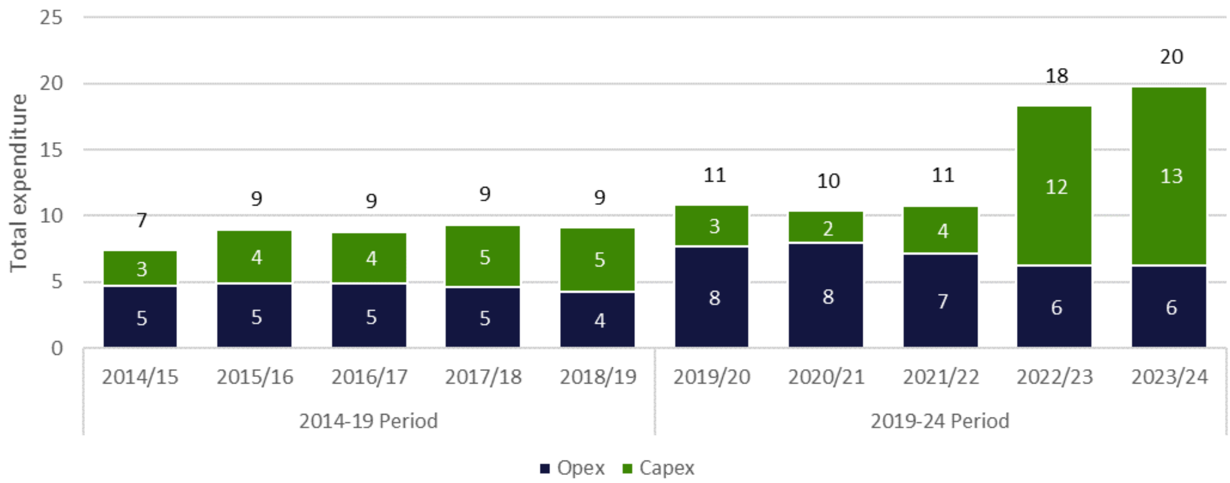
We have recently signed contracts with metering service providers to ensure we have the capacity to deliver on this accelerated pathway, and these contractors have now commenced work. Over 1,200 meter replacements were performed in each of the first two months of their engagement (October and November 2022). These increased replacement rates support our forecast for the 2024-29 period. In addition, we have 7,000 meters in stock with 15,000 more on order.

Our proposed capital expenditure for the forthcoming regulatory period builds on this accelerated program.

Our metering opex is expected to be $35.3 million over the current period, or $7.1 million per annum, on average. This is $3.1 million or 9.6 per cent higher than the current period allowance. This increase in cost is largely driven by an increase in actual labour rates compared to forecast.[5]

Our expenditure since 2014 is shown in Figure 3.3.

Figure 3.3: Metering expenditure ($ million real 2024)



5 We completed a labour rate review in 2021. As part of this we escalated our costs which were established four years prior and had not been indexed. We also improved our overhead cost allocation approach, as discussed previously.

4. Capital expenditure

Over the 2024-29 regulatory period, we will spend $41.5 million to continue to install smart meters when replacing old or faulty mechanical meters, and for all new meter connections. This will enable our customers to continue connecting rooftop solar, helping drive down carbon emissions and costs, without adversely impacting system security.

4.1 Drivers of forecast capex

4.1.1 Managing condition issues from an ageing asset base

As with any of our other network assets, assets need to be replaced when:

- The asset reaches its retirement age.
- The asset fails in service.
- The condition of the asset has deteriorated such that it poses a risk to safety, reliability and the environment.
- Additionally, meters need to be replaced when they no longer meet the accuracy requirements of the NT NER.

A review of our metering approach was undertaken in 2012. This showed our meter fleet was in poor condition following a significant period of sustained under investment. Reliability and accuracy of metering had deteriorated significantly for customers.

Our largely reactive approach has kept asset replacement costs low, with asset risks within reasonable bounds. However, we have now moved to a more proactive asset management approach, establishing sustainable asset replacement volumes.

Figure OV.1 shows the forecast age of our meter fleet as at June 2024, if we did not continue with our meter replacement program. Though a range of factors contribute to meter accuracy and performance (for example location and meter type), age is a good indicator. Mechanical electricity meters have an economic life of 22 years, and a reliable technical design life of up to 30 years in the Northern Territory’s operating environment.

Generally speaking, the further a meter gets beyond its technical design life, the more it becomes prone to measurement errors, which results in inaccurate billing and non-compliance with national measurement requirements. In particular, we have found:

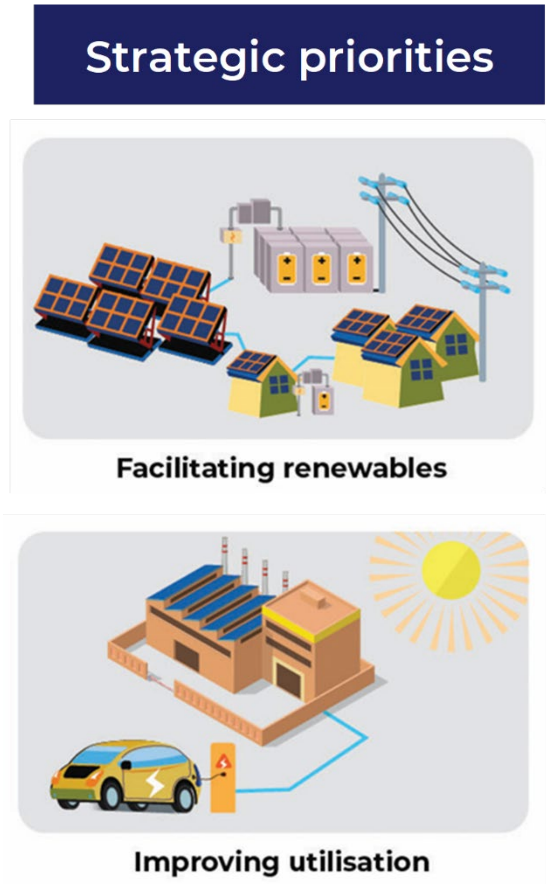
- Our level of meter investigations for inaccurate bills being generated by customers and retailers is significantly higher than industry averages.
- We have increasing levels of meter replacements due to failure in service of both mechanical and electronic meters (liquid crystal displays (**LCD**) on electronic meters are frequently not realising a 15-year life in many Territory locations).

The replacement of large families of meters needs to be planned over more than one regulatory period to ensure resources are available to undertake the required works, and to smooth price impacts for customers.

It should also be highlighted that we have responsibility for both electricity and water meters. Water meters are also beginning to transition to smart, remotely read meters. As we generally read both meters concurrently, the marginal cost of manually reading remaining, mechanical meters, both water and electricity, will continue to grow.

4.1.2 Investing to facilitate renewables while maintaining system security

The move to a clean energy future presents a fantastic opportunity. Renewable generation is low cost, low emission, and in combination with storage, has the potential to improve system security and utilisation. By taking prudent action now to allow more renewables – both large and small scale – to connect, and to unlock the value of that already connected, we can facilitate:



- Lower energy costs – cheaper bills for the NT.
- Decarbonisation – a greener and more productive NT.
- A reliable and secure electricity supply.
- Customer choice and equity.

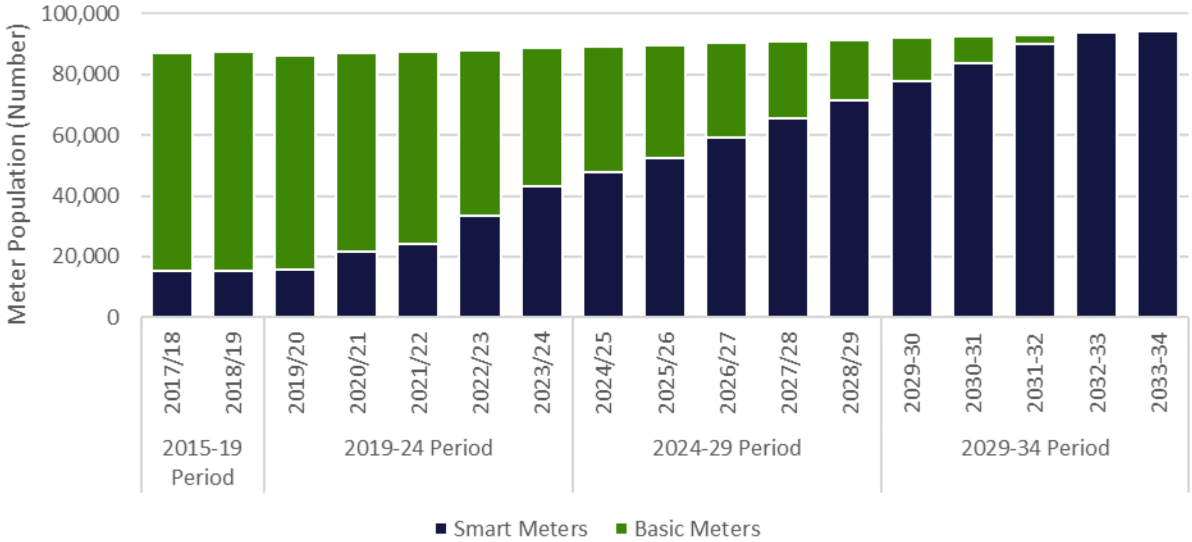
Small scale solar is critical to achieve the NT Government's 50 per cent renewable target, and smart meters are critical to allow the continued installation of small scale solar.

The installation of smart meters across the network is also important to achieving each of these benefits without sacrificing another. For example, the continued introduction of small scale solar will help the Territory decarbonise, and lower energy generation costs. However, it increases the risk of system security and reliability issues through for example lowering minimum demand. The continued installation of smart meters will:

- Allow visibility of behind the meter generation.
- Provide the ability for our operators to control rooftop solar exports during minimum demand.
- Maximise the impact of innovative tariffs designed to change consumption behaviour.
- Provide the customer choice and equity customers have told us they want.
- Monitor compliance of rooftop PV systems to prevent surges in voltage on the network.

Of the remaining approximately 45,400 non-smart meters at the commencement of the next regulatory period, just under half (around 22,300) are proposed to be replaced with smart meters during the 2024-29 regulatory period – these meters have asset lives well beyond their operational life. The remaining meters are forecast to be replaced in the 2029-34 regulatory period. Figure 4.1 provides a view of our smart meter population over time.

Figure 4.1: Meter population over time



On completion of the backlog of end-of-life meters, we will replace meters on failure, with a predicted failure rate of around 2 per cent.

Our Metering Asset Management Strategy provided at Attachment 13.03 sets out how we plan to manage our metering assets over the 2024-29 regulatory period, and our Metering Program business case is provided at Attachment 13.04.

4.2 Forecast methodology

We have forecast our metering capex program using the same method as our standard control services forecasts, and in accordance the Forecast Expenditure Methodology we submitted to the AER in June 2022.

At a high level, there are three steps to our capex forecasting approach:

1. **Investment strategy** – The starting point for our expenditure forecasts is to understand our changing environment over a longer-term horizon. Our strategy is informed by the feedback provided by our customers on values, vision, and priorities for investment.
1. **Bottom-up plans** – We identify key drivers of investment such as asset condition, growth in network usage, support from non-network assets, and overhead requirements. We then undertake a needs and options assessment to develop a bottom-up list of projects and plans over a 10-year horizon.
2. **Checks of the program –** A portfolio view helps identify the optimal mix of projects and programs that provide best value, align with longer term investment priorities, and deliver customer preferences.

Our overall approach has considered the AER's Expenditure Forecast Assessment Guidelines and the Capital Expenditure Assessment Outline for Electricity Distribution. Our forecast method seeks to align to the guidelines by:

- Presenting capital expenditure in the sub-categories nominated by the AER.
- Ensuring our project assessment provides economic justification.
- Undertaking checks such as benchmarking with peers, and comparisons to past expenditure.
- Prioritising our programs through top-down analysis of priorities and capabilities.
- Using AER models to challenge our forecasts.

We have considered the AER's Industry Practice Note on Asset Replacement Planning by applying its risk-cost assessment methods. We have applied a new risk quantification framework as part of our business case assessment. This was a key element of AER feedback in our last regulatory proposal.

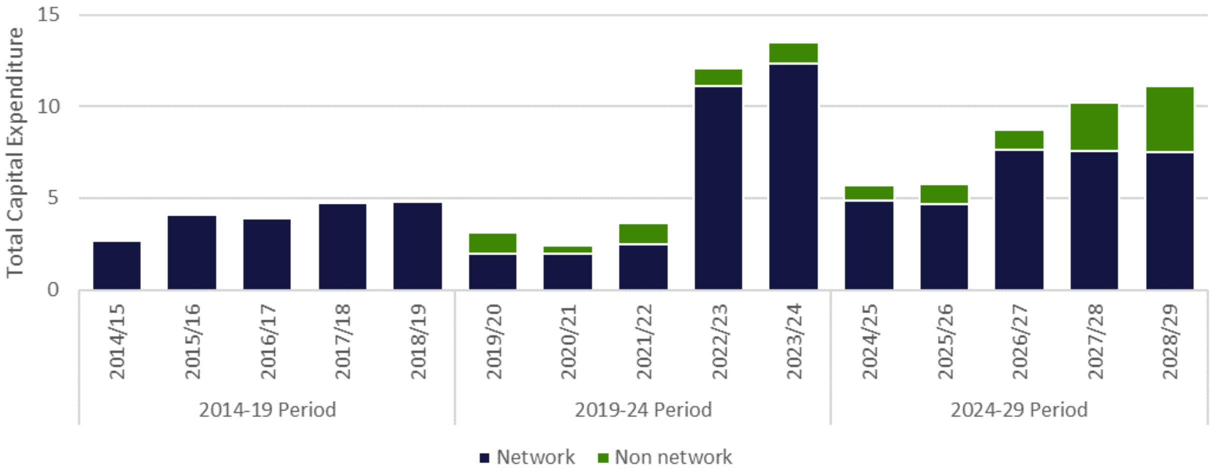
Our meters and contractor support for metering installation services are sourced through recently completed competitive tender processes for standardised products and services, and our models are based on the averages of these competitively sourced costs and our own internal costs.

4.3 Forecast by category

4.3.1 Overall

We propose spending $41.5 million in capex over the next regulatory period. This program of work is $6.7 million or 19.2 per cent higher than the current regulatory period, and $10.3 million or 32.9 per cent higher than the AER's allowance.

Figure 4.2: Capex split by network and non-network by year ($ million real 2024)



4.3.2 Replacement capex

Replacement capex is to replace or extend the lives of (refurbish) our existing network assets. The primary reasons for replacing assets are degradation in condition, failure to comply with our regulations, or technical obsolescence.

We plan to spend $29.7 million of replacement capex over the next five years to provide our customers accurate and reliable metering services. As discussed, this is driven by the declining condition of our assets.

Our proposed replacement capex program for meters includes:

- $17.5 million to replace a further 21,000 end of life mechanical meters with smart meters.
- $2.7 million to replace failed in-service meters.
- $7.2 million to remediate around 4,400 asbestos meter panels in order to replace end of life meters. This is based on the historical rate of finding asbestos meter panels.
- $2.3 million on other replacement programs (including for example replacing modems and the storage and disposal of removed meters).

Each of these programs reflects the continuation of a program of work approved by the AER in the current period. The forecast installation cost is based on our internal labour and fleet costs, and where appropriate, current contracted service providers' costs, while the purchase cost of the meter is based on actual meter costs sourced via a competitive tender process. Total cost includes the storage and environmentally appropriate disposal of removed meters.

The proposed capex forecast commences at a lower level of expenditure in the first two years of the regulatory period. The rationale for this is that we have a significant population of unregulated meters (around 14,000) that we are responsible for. These meters form part of various isolated systems in the NT which are not connected to the regulated networks. Similar to the wider, regulated meter population, many of these meters are at the end of their useful life and require upgrading. These meters are a priority for replacement. Accordingly, resources will be redirected to this work, necessitating a reduction in the replacement program for regulated meters for this two-year period.

The replacement costs above include allocated overheads which have been calculated based on 42.4 per cent of direct expenditure.

4.3.3 Connections capex

Connections capex reflects the costs of connecting new customers to the network over the 2024-29 regulatory period. It is based on the demand forecasts developed by our independent consultant, Energeia provided at Attachment 8.64.

While we expect continued growth in larger, high voltage connections at 3.9 per cent per annum, low voltage connections will only increase by a modest 0.6 per cent per annum.

Table 4.1 shows the forecast connections by meter types based on the Energeia growth rates.

Table 4.1: Customer connection forecasts by meter type

Meter type	2024-25	2025-26	2026-27	2027-28	2028-29
Single phase	75,516	75,385	74,853	74,313	73,825
Three phase	10,866	11,427	12,321	13,227	14,088
LV CT	2,737	2,862	3,056	3,248	3,435
HV	140	145	151	157	163
Total	**89,260**	**89,819**	**90,381**	**90,945**	**91,512**
Growth	**+558**	**+559**	**+562**	**+564**	**+567**

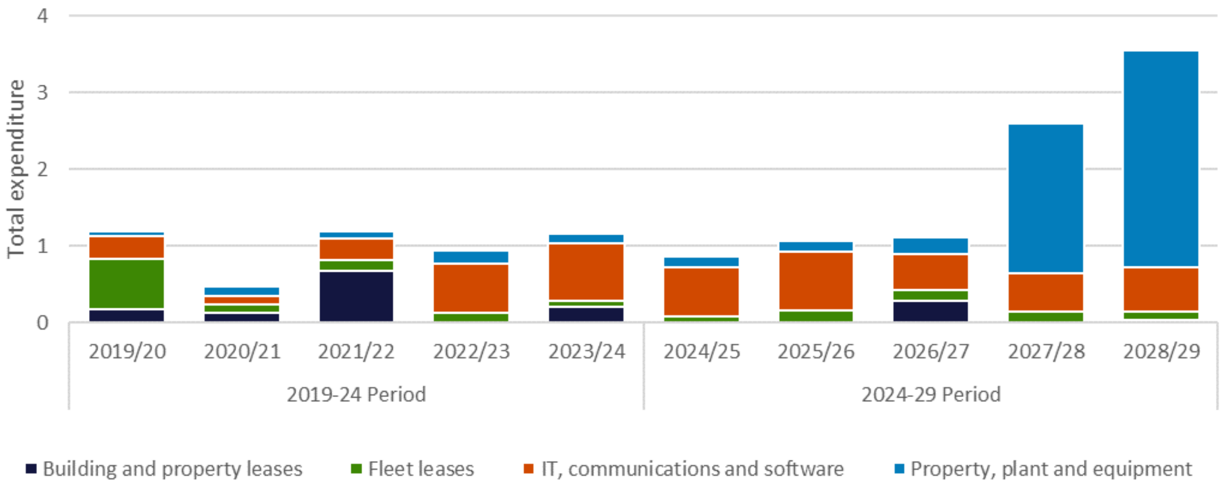
Energeia's forecast new connections result in capex of $2.7 million to connect a further 2,810 customers to the network.

4.3.4 Non-network capex

Non-network capex includes ICT, property, fleet and plant. This expenditure is on 'supporting assets' that we need to be able to provide metering services.

Over the next regulatory period, we will spend $9.2 million on non-network metering capex (see Figure 4.3).

Figure 4.3: Non-network metering capex by year ($ million real 2024)



The increase in expenditure in the next period is driven by the Single Site Consolidation project. More information on this is provided in Attachment 8.01.

4.4 Metering capex

Table 4.2 sets out our forecast capex for metering over the 2024-29 regulatory period.

Table 4.2: Capex by category 2024-29 ($ million real 2024)

Capex category	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**

5. Operating expenditure

Although the number of meters we operate and maintain is increasing, we expect our opex costs to decrease by around five per cent compared with the current period. Over the next period, we will continue to leverage our population of smart meters to reduce the cost of meter reading services, and provide more granular consumption data to customers and retailers.

5.1 Forecast method

We applied the AER's preferred base-step-trend method[6] to forecast operating expenditure. This involves:

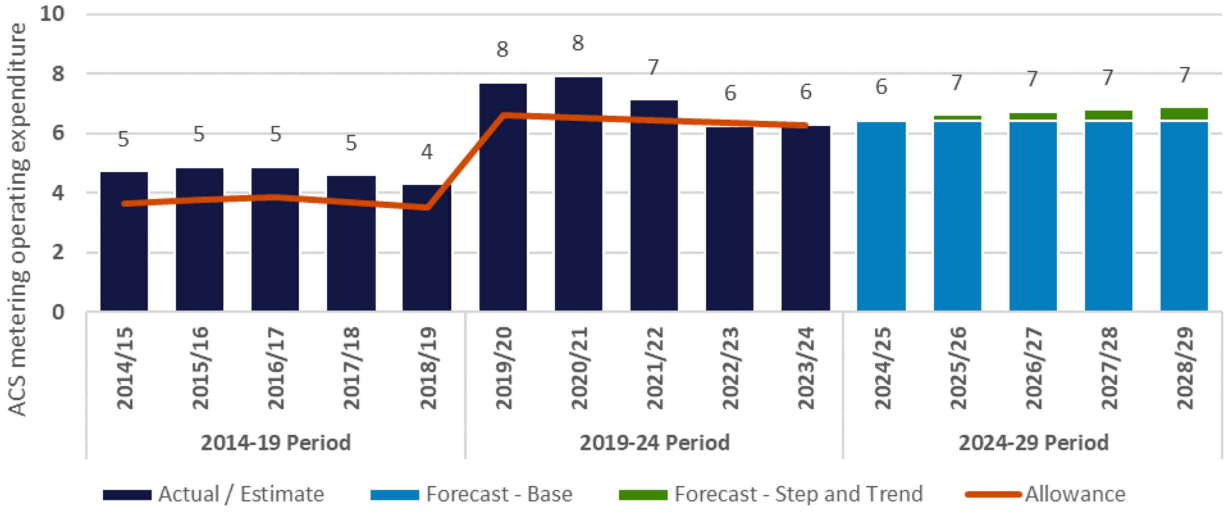
3. **Establishing an efficient opex base year from which to forecast ongoing costs** – Opex tends to be recurrent from year to year. This means that the most recent year of actual expenditure generally provides a good indication of future levels. As such, we have used our audited Financial Year 2022 as the base year.
4. **Applying trend adjustments to account for growth** – Consistent with the AER's approach we will apply a rate of change to the base year to account for changes in input prices, work activity from increasing network size, and productivity.
5. **Determining and adjusting for step changes** – We have identified and costed changes impacting our business environment that will affect our costs.

5.2 Opex forecast

We plan to spend $33.5 million over the next five years to operate and maintain our meters and manage meter data. This is a decrease of 5.1 per cent when compared to the $35.3 million we expect to spend in the current period, but $1.3 million, or 4.0 per cent higher than the current period allowance (see Figure 5.1).

6 As outlined in the AER's Expenditure Forecast Assessment Guidelines.

Figure 5.1: Metering opex ($ million real 2024)



Our base opex is remaining in line with our actual spend in the current period. The increases are driven by the allocation of various step changes from our overall opex program to metering services and are wholly offset by:

- Establishment of a contracting panel to supplement internal labour for metering work, which is providing efficiencies and reducing overall costs.
- Improved allocation of overhead costs from overall opex directly to activities and projects.

We have used the same base step trend forecasting method as we used for standard control services, including the use of 2021/22 revealed costs as the base year. More information is provided in Attachment 9.01.

The base-step-trend method has resulted in:

- Adjustments totalling -$3.9 million over the period for one off items removed from the base year.
- Output growth of 0.3 per cent, directly related to the number of new customers connecting to the network, and therefore requiring new meters, resulting in an additional $0.3 million over the period.
- An allocation of the step changes that apply across our opex program as a whole, such as the cyber security uplift totalling $1.6 million over the period. More information on our proposed step changes is provided in Attachment 9.02.
- A negative step change of -$0.3 million over the period reflecting efficiencies from increased remote, rather than manual meter reads and reductions in special meter reads.

Table 5.1 sets out our forecast opex for metering over the 2024-29 regulatory period.

Table 5.1: Forecast metering services opex ($ million real 2024)

	2024-25	2025-26	2026-27	2027-28	2028-29	Total
Base Opex	7.2	7.2	7.2	7.2	7.2	**35.9**
Adjustments	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)	**(3.9)**
Trend – input cost	(0.1)	0.0	0.0	0.0	0.0	**(0.1)**
Trend – output growth	0.0	0.0	0.1	0.1	0.2	**0.3**
Step change – metering efficiencies	0.0	(0.1)	(0.1)	(0.1)	(0.1)	**(0.3)**
Step changes - allocation	0.3	0.3	0.3	0.3	0.3	**1.6**
Total	**6.5**	**6.6**	**6.7**	**6.8**	**6.9**	**33.5**

6. Revenue

Our forecast (smoothed) revenue for 2024-29 is $64.9 million. This is $19.6 million or 43.3 per cent higher than the $45.3 million our allowance for the current regulatory period. It should be highlighted that, due the number of physical meters being used to calculate current period prices rather than billing meters we only expect to recover $33.8 million of revenue in the current period.

The other driver of the increase in revenue is the 38.5 per cent increase in our metering asset base resulting from the increase in asset replacements as we continue our proactive replacement program for end of life meters.

In its determination on the Framework and Approach, the AER has decided to continue to apply a price cap form of control on our alternative control services. This includes type one to six metering services.

6.1 Revenue forecasting approach

Our approach to determining the metering regulatory asset base (**RAB**) and depreciation is consistent with our approaches adopted for standard control services set out in the Regulatory Proposal.

The RAB is used to determine our return on capital and the return of capital (depreciation) over the next regulatory period:

- Return on capital covers the efficient cost of financing investment in our network, and is calculated for each year of the next regulatory period by taking the opening RAB value and multiplying this by our proposed rate of return.
- Return of capital reflects the depreciation of our assets over the regulatory period which is the decrease in their value due to usage and aging. We have calculated this using the year-on-year tracking method, which has been accepted in recent AER decisions.

We established our opening RAB for the next period of $49.9 million by:

- Starting with the AER's determination of the opening RAB for the 2019-24 period.
- Applying metering RAB asset categories in the roll forward model and then mapping actual/forecast values from 2019/20 to 2020/24 to the new categories for gross capex, capital contributions and disposals.
- Calculating the applicable standard lives to be applied to the new asset classes.
- Adjusting for straight line depreciation and inflation.

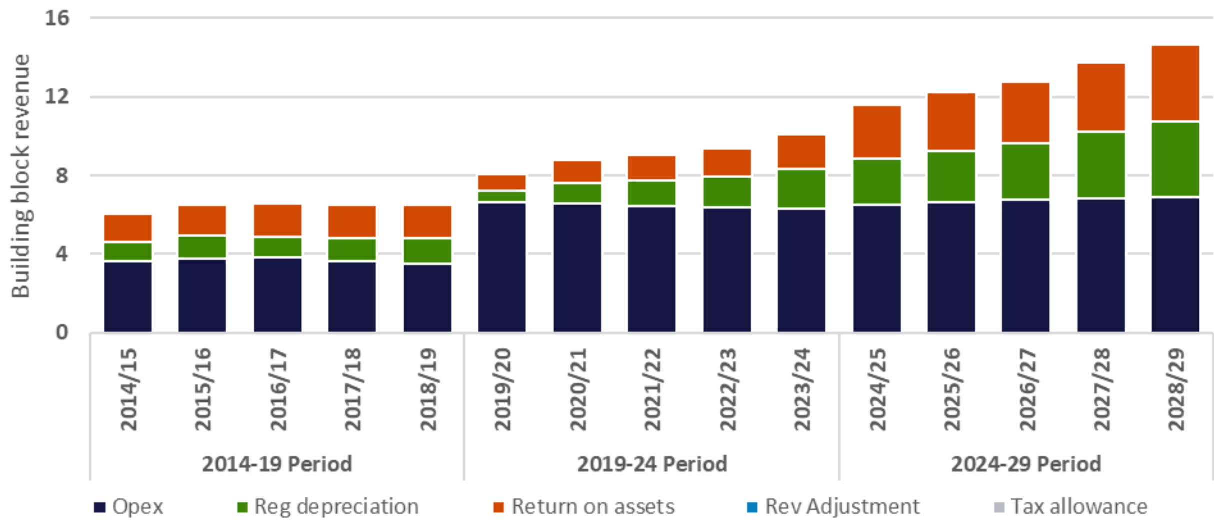
The key outputs are linked directly to the opening balances for the post tax revenue model.

We have not made any changes to input assumptions such as asset lives.

6.2 Revenue forecast and trends

Figure 6.1 shows our forecast revenue for the 2024-29 regulatory period compared with the current and previous periods.

Figure 6.1: Metering revenue ($ million real 2024)



As shown in Figure 6.1, our 2024-29 revenue is significantly higher than both previous periods. The key drivers of the increased revenue requirement are:

- The $19.2 million or 38.5 per cent increase in the metering asset base resulting from the increase in asset replacements as we continue our proactive replacement program for end of life meters.
- Current economic conditions and associated increases in financing costs estimated to be worth $3.3 million.
- Increases in non-network capital, including an allocation for the single site consolidation project.

A breakdown of our revenue requirement is provided in Table 6.1.

Table 6.1: Metering revenue requirement ($ million real 2024)

	2024-25	2025-26	2026-27	2027-28	2028-29	Total
Return on capital	2.7	2.9	3.1	3.5	3.9	**16.2**
Regulatory depreciation	2.3	2.6	2.9	3.4	3.9	**15.1**
Opex (including Debt Raising)	6.5	6.6	6.8	6.8	6.9	**33.6**
Corporate income tax	-	-	-	-	-	**-**
Annual revenue requirement (unsmoothed)	11.6	12.2	12.8	13.7	14.7	**64.9**
X factors	(33.92%)	(4.88%)	(4.88%)	(4.88%)	(4.88%)	**N/A**
Maximum allowed revenue requirement (smoothed)	**11.6**	**12.2**	**12.9**	**13.7**	**14.5**	**64.9**

6.3 Asset disposals and capital contributions

There are no forecast asset disposals or capital contributions for metering for the 2024-29 period.

6.4 Asset base and depreciation

Table 6.2 shows the asset lives for our different meters and metering-related assets.

Table 6.2: Proposed standard lives for meters and meter-related assets for 2024-25 to 2028-29

Asset Class Name	Standard Life
Mechanical meters	22.1
Metering equipment (electronic meters, communications, CTs, VTs)	15.0
Non-network other	38.1
Non-network IT and communications	10.0
Fleet leases	7.0
Property leases	4.5
Buildings	40.0
In-house software	5.0

Our experience to date in the NT with electronic meters is that the standard life of 15 years is possibly overstated. We will continue to collect data on failure of these meters into the future.

Table 6.3 sets out our projected ACS Metering Services RAB over the 2024-29 regulatory period.

Table 6.3: Forecast metering RAB 2024-29 ($ million real 2024)

$M, Real $2024	2024/25	2025/26	2026/27	2027/28	2028/29
Opening ACS metering RAB	**49.9**	**52.0**	**53.8**	**58.2**	**63.5**
Plus capex[7]	5.8	5.8	8.9	10.3	11.3
Less customer contributions	-	-	-	-	-
Less disposals	-	-	-	-	-
Less depreciation	(3.7)	(4.1)	(4.4)	(5.1)	(5.7)
Plus funding costs	0.0	-	-	-	-
Closing ACS metering RAB	**52.0**	**53.8**	**58.2**	**63.5**	**69.1**

Our proposed regulatory depreciation forecast is shown in Table 6.3, which we calculated using the Metering Post Tax Revenue Model (see Attachment 13.08) as forecast straight-line depreciation less forecast indexation of the RAB.

Indexation is calculated by multiplying the opening value of the RAB each year by forecast inflation. Chapter 10 of our Regulatory Proposal provides further detail.

6.5 Rate of return and inflation

In determining our metering services revenue requirement, we have adopted the same rate of return and approaches to determining inflation as set out in chapter 10 of our Regulatory Proposal.

7 Capex shown here is grossed up by a half year of WACC from the middle of the year to the end year.

7. Indicative prices

We have improved the cost-reflectivity of our metering services, including by accurately identifying billing meters and improving the way we allocate our overhead costs. In the next period, we propose to continue this process by further segmenting our metering services.

We have made a number of changes to the way our metering services are categorised to better allocate costs between customers. Specifically, we have separated low voltage current transformer and high voltage metering each into their own categories. This will ensure these higher cost services are not incorrectly allocated to customers with lower cost service provision.

Not all generators were charged for metering services in the 2019-24 regulatory period due to an historical anomaly where NMIs were not allocated to these meters and as there was no mechanism to charge the generators through our billing system. These issues will be corrected prior to the commencement of the 2024-29 regulatory period. The generation meters are all high voltage meters (many requiring check metering) and represent a significant operating expense to test and inspect in accordance with the NT NER.

We have allocated the forecast revenue to each of the proposed updated tariff classes and annualised the costs[8]. The resulting tariffs are provided in Table 7.1.

Table 7.1: Metering tariffs ($ per meter per annum excluding GST real 2024)

Service	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Single phase meters (including prepayment)	82.3	110.2	115.5	121.2	127.1	133.3
Three phase direct connected meters (including 3 single phase meters on a single NMI)	109.0	145.9	153.1	160.5	168.4	176.6
Low voltage current transformer metering	434.9	582.4	610.8	640.6	671.9	704.6
High voltage metering	1,500.4	2,009.5	2,107.4	2,210.2	2,318.0	2,431.0

8 These annual charges will be converted into a daily charge for billing purposes.

While there is a step increase in tariffs of 33.9 per cent in the first year of the next regulatory period, this is primarily driven by incorrect volumes being used to set prices in the current period (see section 3.1), as well as the impact of continuing to upgrade the meter fleet for meters beyond their technical design life (which will continue to build the RAB over the next 15 years), and the change to capitalisation policy.

While the increase in charges in year one is significant, as explained earlier this change rectifies the issue causing previous under-recoveries and supports the progressive introduction of smart meters. We believe these charges are competitive, based on our market analysis.

We have developed tariffs such that the main impact is in the first year of the next regulatory period, with increases of only 4.9 per cent per year across the remainder of the period.

In addition to our metering tariffs a series of customer requested fee-based metering charges are proposed for 2024-29. These are outlined in Attachment 13.10.

8. Pass through events

Pass through events provide us with an ability to recover sufficient revenue should a nominated event materialise, change our costs of providing distribution services and be outside our control.

We have nominated several specific, pre-defined events that are unpredictable in nature, beyond our control, and if they occur, would involve us incurring significant costs. The pass through mechanism allows us to recover the efficient cost of these events from customers, that we would otherwise not be able to.

We propose the pass through events be applied to both standard control services and alternative control services. This is particularly important for our metering services, which are based on based on revenue build up approach to derive the prices.

More information is provided in Attachment 12.02.

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