NTESMO

Consultation Paper 2

NTESMO regulated charges for period commencing 1 July 2024

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About this paper

The Northern Territory Electricity System and Market Operator (NTESMO) provides services in the Northern Territory's (NT) regulated electricity systems. The System Controller maintains power safety, reliability and security in the regulated electricity systems in Darwin-Katherine, Alice Springs and Tennant Creek. The Market Operator registers system participants, and provides a settlement service to market participants in Darwin-Katherine.

The NT Utilities Commission (Commission) is responsible for regulating NTESMO's charges for power, system control and the market operator. The Commission makes a regulatory determination based on a review of NTESMO's proposed costs, revenue and energy forecasts. The current determination period commenced on 1 July 2019 and expires on 30 June 2024. Stakeholder consultation is guiding the development of the regulatory proposal for the period commencing 1 July 2024.

Purpose of consultation

This paper is our second round of consultation as we prepare to submit our regulatory proposal to the Commission in December 2023. In our initial round of consultation, we sought feedback on strategic and framework issues, and received valuable feedback from our stakeholders.

This paper seeks feedback from customers on detailed elements of our upcoming proposal. This includes the initial calculation of charges for the next regulatory period and options to mitigate bill impacts. We also identify our preferred position on the framework and approach for our upcoming proposal.

Invitation to make a submission

Interested stakeholders are invited to provide feedback on key questions relating to the initial calculation of charges for the next regulatory period and our preferred positions on the framework and approach for the upcoming regulatory proposal.

Written submissions on the issues raised in this consultation paper are invited by **29 September 2023**. Please identify any information that you consider to be confidential and provide a separate non-confidential publishable copy of your submission for transparency.

Email submissions to: market.operator@powerwater.com.au.

Workshops

On 22 August 2023, a stakeholder workshop provided the opportunity to discuss the issues raised in this consultation paper.

Our Peoples Panels forums will also provide feedback on the key issues raised in this paper, ensuring we hear the voices of smaller customers.

Summary

NTESMO is responding to fundamental changes in NT electricity systems. Renewables are accelerating quicker than expected in the current regulatory period, and thermal generators expected to retire in the next regulatory period, creating power security challenges. There has also been a marked growth in smart meters impacting our capabilities to provide a settlement service. We expect that regulated charges will rise steeply as we respond to these challenges and would like stakeholder feedback on mechanisms to mitigate bill impacts, while ensuring recovery of efficient costs.

This paper provides a concise summary of the issues in each chapter, with further detailed information available in the body of the paper.

NTESMO's role in the electricity system

NTESMO is a ring-fenced business unit of Power and Water Corporation (Power and Water). The System Controller provides a critical function of maintaining power safety, security and reliability in Darwin-Katherine, Alice Springs and Tennant Creek regulated networks. The Market Operator facilitates settlement of market participants and registers new participants in Darwin-Katherine.

Charges are levied on retailers based on energy consumption of their customers. The charges are regulated by the Commission and currently comprise about 2 per cent of the energy bill for major customers not subject to the Northern Territory Government (NTG) Pricing Order.

Our next regulatory determination commences on 1 July 2024. Chapter 1 provides information on our critical roles in the NT electricity system and the process for regulating our charges.

Listening to feedback from the first round of consultation

In the initial consultation round, we sought feedback from stakeholders on strategic issues such as NTESMO's role in responding to accelerated renewables on the system and managing increasing data to settle the market. We also discussed key framework issues with our upcoming regulatory proposal such as the length of the regulatory period.

Our stakeholders have provided valuable feedback on our strategic direction. Stakeholders considered that NTESMO should take action to facilitate the NT Government's transition to renewables, but we should be mindful of costs and customer impacts. Stakeholders also provided a diversity of views on the key framework issues such as a shortened regulatory period and potential changes to our charging structures. Chapter 2 provides information on the feedback received in our initial round of consultation and how this has impacted this second consultation paper.

The purpose of the second round of consultation is to 'deep dive' into our preferred position on framework and approach issues for the upcoming proposal, and to provide information on regulated charges and options to mitigate bill impacts.

Preferred position on framework and approach for upcoming proposal

In the initial round of consultation, we noted key issues impacting the development of our upcoming regulatory proposal. This included delays in preparing our regulatory proposal, uncertainty on timing and scope of reforms to the NT electricity market (NTEM), and potential opportunities to change our charging structures. We presented options including different lengths of the regulatory period, mechanisms to manage uncertainty with NTEM related costs in the next regulatory period, and changes to charging structures. Stakeholder feedback was diverse on these issues, with no clear consensus.

In this second round of consultation, we identify our preferred framework and approach for the upcoming regulatory proposal including:

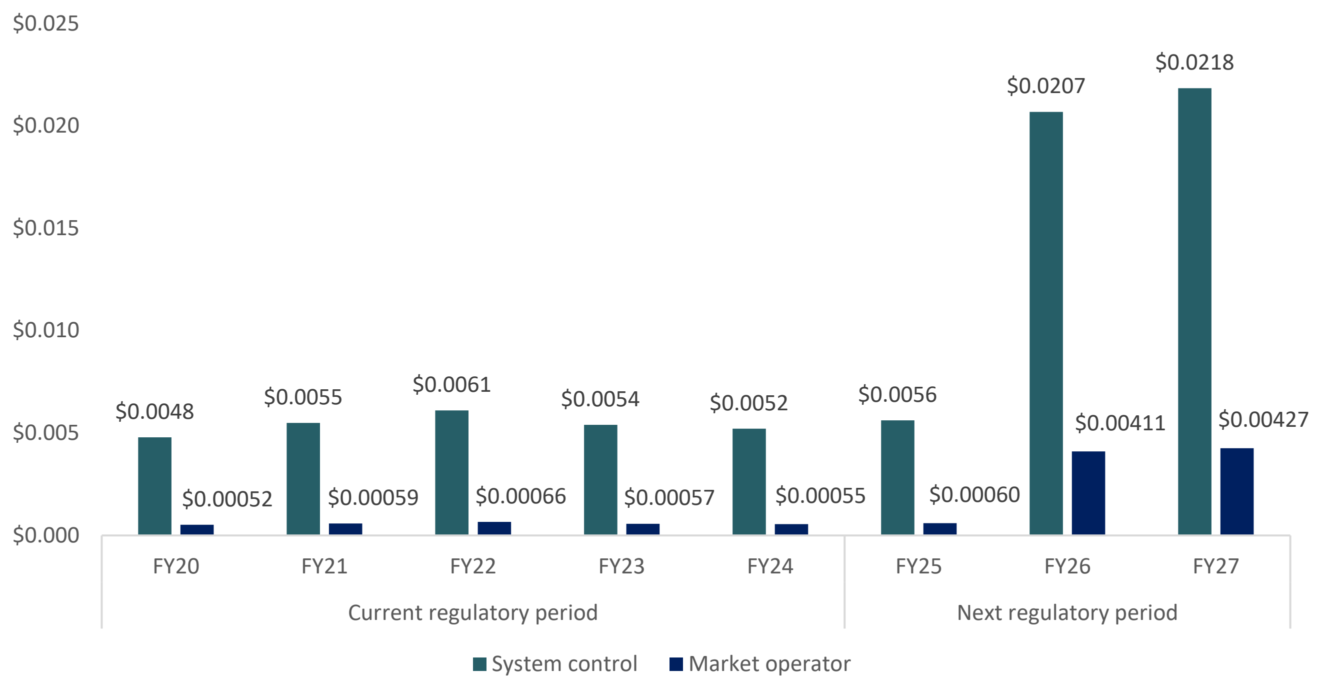
- Seeking a three year regulatory period commencing 1 July 2024 and ending on 30 June 2027.
- The 2024-25 prices will be a roll-forward of the current 2023-24 charges approved by the Commission, with an adjustment for inflation (placeholder prices in FY25).
- Including cost pass throughs or contingent projects as mechanisms to recover costs incurred in the next regulatory period relating to NTEM or other changes in circumstances.
- Not making any material changes to how we levy or structure regulated charges.

This paper seeks feedback from stakeholders on our preferred approach in respect of our upcoming proposal to the Commission. Chapter 3 provides further detail and specific questions.

Step increase in regulated charges in next regulatory period

We have undertaken an initial calculation of regulated charges for the next regulatory period. **Figure 1** shows a steep increase in regulated charges for both System Control and Market Operator in 2025-2026 (FY26). This is an initial view to provide early visibility to our stakeholders. Further work is still required to finalise cost and revenue inputs.

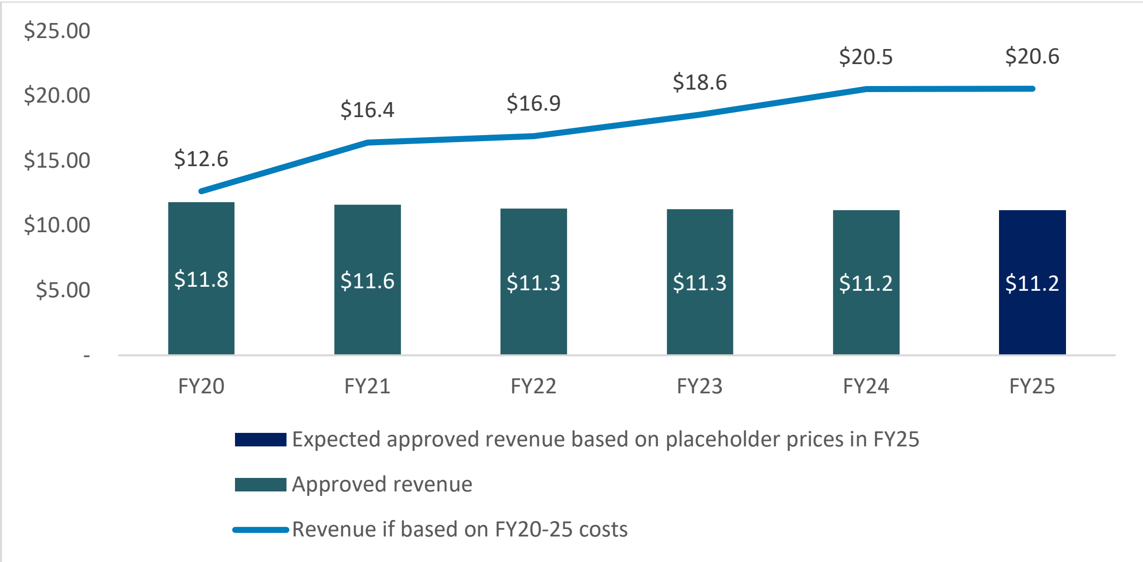
Figure 1: Initial calculation of regulated charges in next regulatory period compared to current period (cents/kWh, nominal)



The increase in regulated charges in FY26 reflects that costs have been higher than allowed in the Commission's current determination for 2019-24 (FY20-24), resulting in a shortfall in revenue. In the lead-up to the determination, we had not anticipated the uplift in renewables that has occurred in the current period. Further, we had expected the NTEM reform to provide a trigger to seek a pass through of costs within the period to meet changes in regulations driven by changes in the NT electricity system. NTEM reform has not progressed, and the changes in the NT systems have been quicker than anticipated. This has resulted in a need for us to incur higher costs to perform our regulated functions.

A revenue shortfall arises in 2024-25 (FY25), the first year of the regulatory period, due to the interim approach to roll forward the approved 2023-24 (FY24) charges due to delays in preparing our proposal. **Figure 2** identifies the annual shortfall between FY20 to FY25, resulting in an aggregate shortfall of approximately $37 million (real, 2023) over the six year period. Our initial calculation of charges has included recovery of the shortfall in the remaining two years of the period (FY2027 and FY28).

Figure 2 – Shortfall in revenue in the 2019-24 period and in the 2024-25 year ($m, real FY2023)



Chapter 4 provides more detail on the method used to derive our initial calculations. We also identify the bill impacts to different customers.

Drivers of higher costs

We understand that our stakeholders require an understanding of the drivers that have led to a higher cost structure than anticipated in our 2019-24 regulatory proposal, which was subsequently used by the Commission to determine our revenue allowance.

Supporting transition to renewables[1]

By far, the most pressing driver has been the acceleration of renewable energy in the NT electricity power system. We have responded by implementing transitional tools to manage the power system. There are plans to invest in a new integrated scheduling and dispatch system termed 'Territory Dispatch Engine' (TDE) to drive efficiencies and secure outcomes in our power system. Importantly, we considered it prudent to

[1] Renewables references renewable energy generation and related resources, including rooftop solar PV systems, large scale solar generation and assets such as batteries that support renewable generation.

take action in the current regulatory period to integrate growing renewables into the power system in advance of NTEM reform.

We note that investment in TDE is the next evolution in our response and is vital for unlocking lower cost renewable technology in the future. While costs are increasing, this provides the potential to lower wholesale generation costs over the long term. This is consistent with the NT Government's (NTG's) modelling of customer benefits of transitioning to 50 per cent renewables by 2030.

Settlement system that accommodates increased smart meters

Under the interim NTEM (I-NTEM) arrangements, NTESMO has an obligation to undertake 'virtual' settlement of the market. To fulfil our obligation, we developed a custom-built system based on Excel spreadsheets, recognising that this was a temporary measure until NTEM was finalised. With the delay in NTEM, the customised Excel program is no longer scalable to meet the data demands of smart meters. For this reason, we are currently implementing a new settlement system that can meet the continued increase in data volumes from smart meters, and the growing number of market participants in Darwin-Katherine.

Supporting Rule development and NTEM reform

NTESMO has been involved in Rule development under our obligations in the System Control Technical Code (SCTC). The regular review was undertaken in the regulatory determination period, with numerous Rule changes in the SCTC identified to adapt to rapid changes in generation and technology. As a technical expert and given the complex issues involved in the reform agenda, we have also provided necessary support to the NTG in the NTEM development.

Staff to support increased activities

The increasing complexity in the operating environment (arising from the increase in renewables and new technologies) requires more time and resources to effectively perform the duties as system controller. This increased complex operating environment has also increased incident reporting activities as the reliability and security risks have increased.

Higher corporate costs

Finally, as a business unit of Power and Water, we receive an allocation of corporate costs. This reflects that NTESMO draws on corporate systems and staff to meet our responsibilities. Our corporate costs have been higher than anticipated in our 2019-24 proposal. The drivers include higher corporate costs in Power and Water, increased allocation to NTESMO to reflect its increasing share and use of corporate services, and the additional financing costs associated with corporate assets.

Mechanisms to mitigate bill impacts

The consultation paper seeks stakeholder feedback on mechanisms to mitigate bill impacts to customers. Initial analysis suggests that under our initial calculation, NTESMO's contribution to the energy bill would rise from about 1.5 to 2 per cent to 6 to 8 per cent depending on the tariff class of the customer.

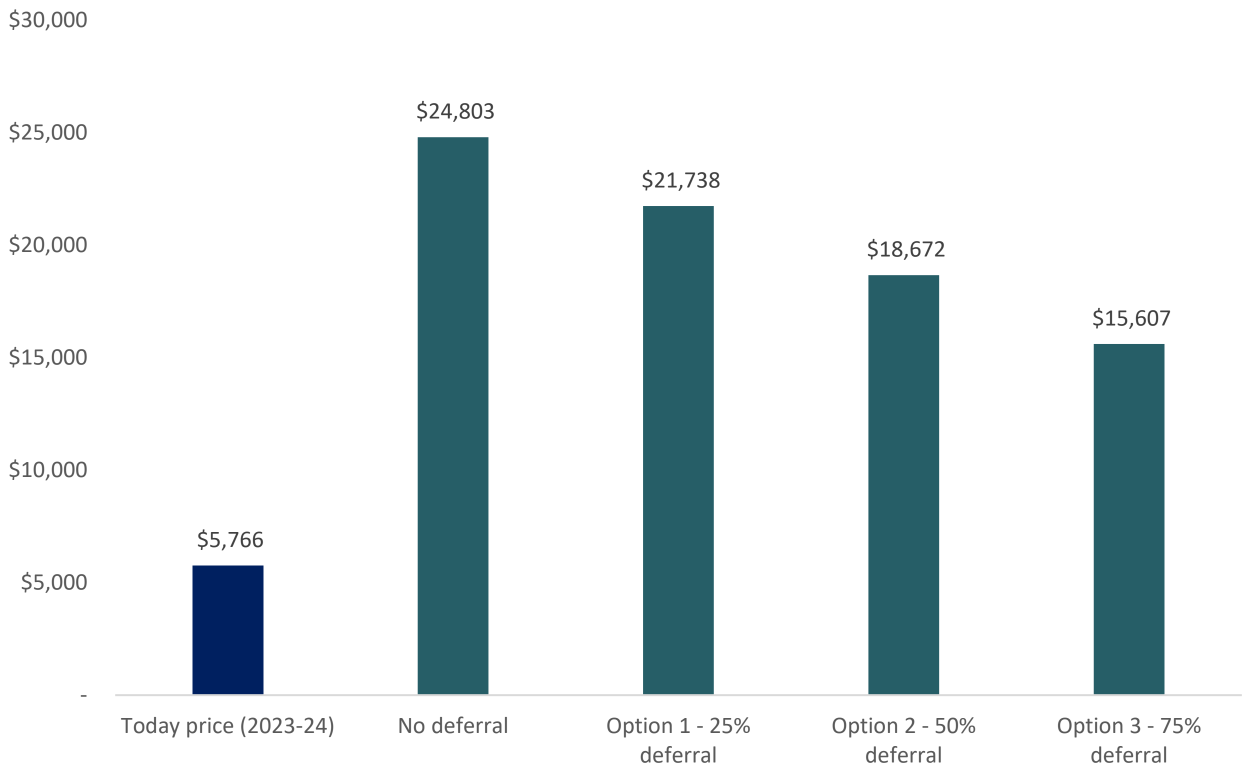
About 99 per cent of our customers have price protections in place under the NTG Pricing Order. It is not clear how the NTG Pricing Order would change in future years to accommodate higher electricity costs including NTESMO's regulated charges. In any case, our major customers who consume more than 750MWh are not subject to the NTG Pricing Order and are more likely to directly pay our regulated charges.

We are seeking feedback on the principles for recovery of costs related to the revenue shortfall between FY20 to FY25. In this consultation paper, we put forward some principles including:

- Clear evidence that the cost was not provided for in the regulatory allowance (no duplication).
- The nature or activity was not reasonably anticipated at the time of making the decision (not foreseeable).
- The scope or option undertaken was prudent in our circumstances (prudent).
- There is evidence that costs were incurred efficiently (efficient).

We are also seeking feedback on options that defer revenue to future regulatory periods. This would have the effect of minimising the bill impact to customers, particularly for customers that are not subject to the NTG Pricing Order. We provide three deferral options to stakeholders. **Figure 3** identifies the bill impact for a large industrial customer consuming 1000MWh based on current charges and compare this to the initial calculation of charges in FY26, the second year of the next regulatory period. We then show the change in bill if we defer recovery of the six years of shortfall in revenue in FY20 to FY25 based on 25 per cent, 50 per cent and 75 per cent deferral. We note that options to defer more revenue has a risk of increasing bill impacts in future regulatory periods. Chapter 6 provides further information.

Figure 3 – NTESMO bill impact for an industrial customer (1000MWh pa) in FY26 under deferral options compared to current charges in FY24 ($ per annum, nominal)



1. Background and context

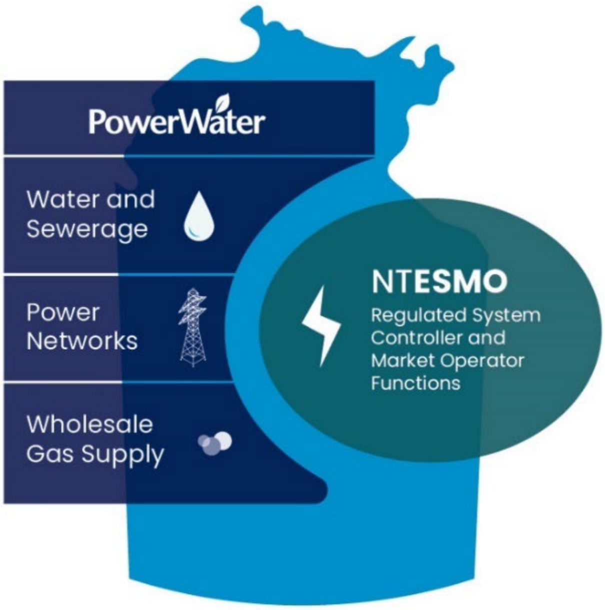
NTESMO's services are critical to energy security and financial certainty in the regulated electricity systems of the Northern Territory (NT). The System Controller is critical to keeping the electricity power system in a secure state 24 hours a day. The Market Operator registers market participants and provides energy data to generators and retailers to facilitate market settlement.

1.1 NTESMO's role in the NT Market

Power and Water is the essential service provider in the NT, connecting thousands of homes and businesses with electricity, gas, water and sewerage. We operate some of Australia's most isolated utility networks, supplying power and water to people in some of the most rugged, remote, yet spectacular places imaginable.

NTESMO is a ring-fenced business unit of Power and Water, responsible for power system control and market operator functions in the NT as depicted in **Figure 4**. Our functions are set out in Section 38 of the *Electricity Reform Act 2000* (NT) and the System Control Technical Code.[2] These functions are performed under the System Control Licence granted to Power and Water.[3]

Figure 4: NTESMO function ring fenced within Power and Water Corporation

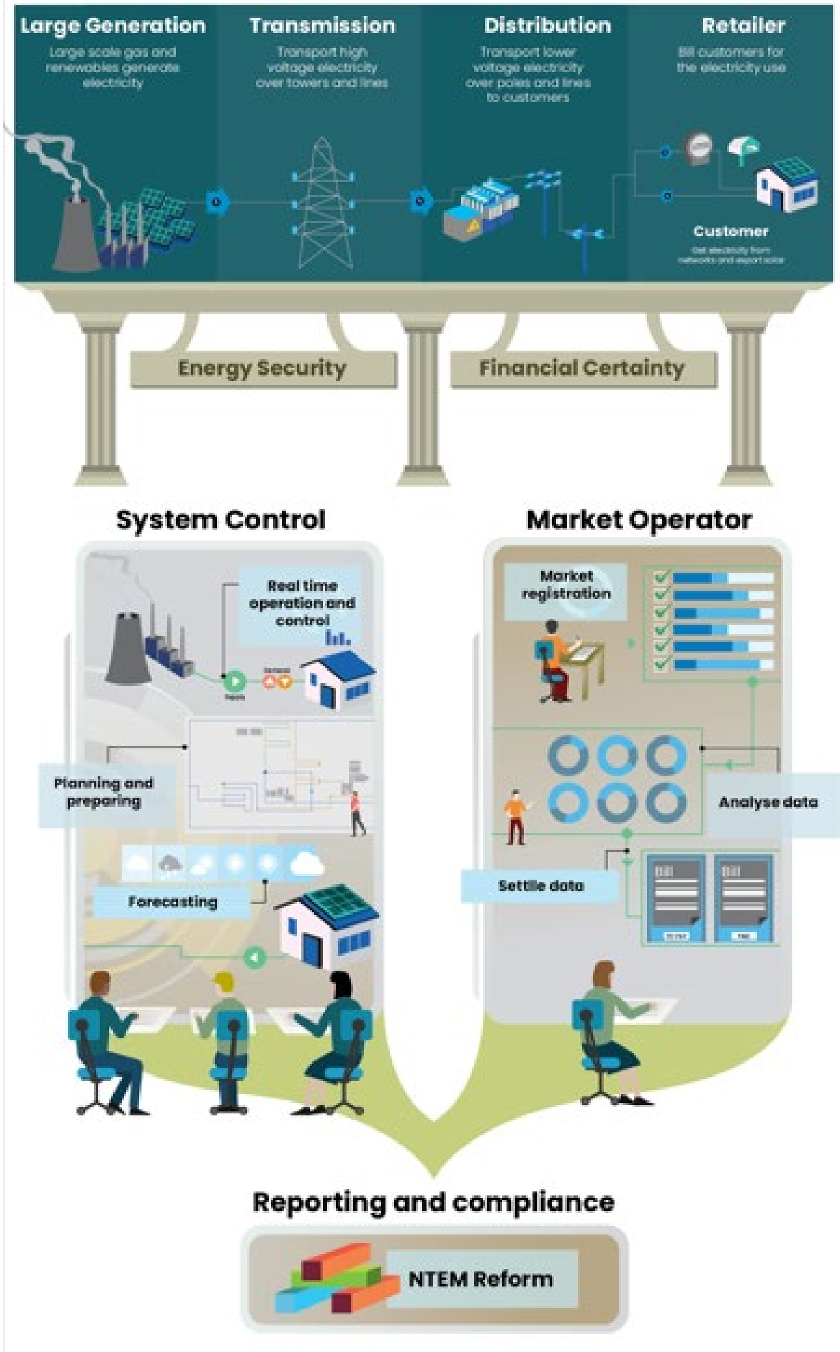


[2] The three regulated electricity system that Power and Water is responsible for under its System Control Licence are: Darwin-Katherine electricity grid, Alice Springs electricity grid and Tennant Creek electricity grid.
[3] The National Electricity Rules (NT) refers to the Northern Territory Electricity System and Market Operator (NTESMO) as a collective term for the entity that either controls the operation of the power system or administers the market arrangements. The term 'NTESMO' is used in this consultation paper to refer to the system controller and market operator functions that Power and Water is licenced to perform under its System Control Licence.

1.2 Critical role of NTESMO in the power system

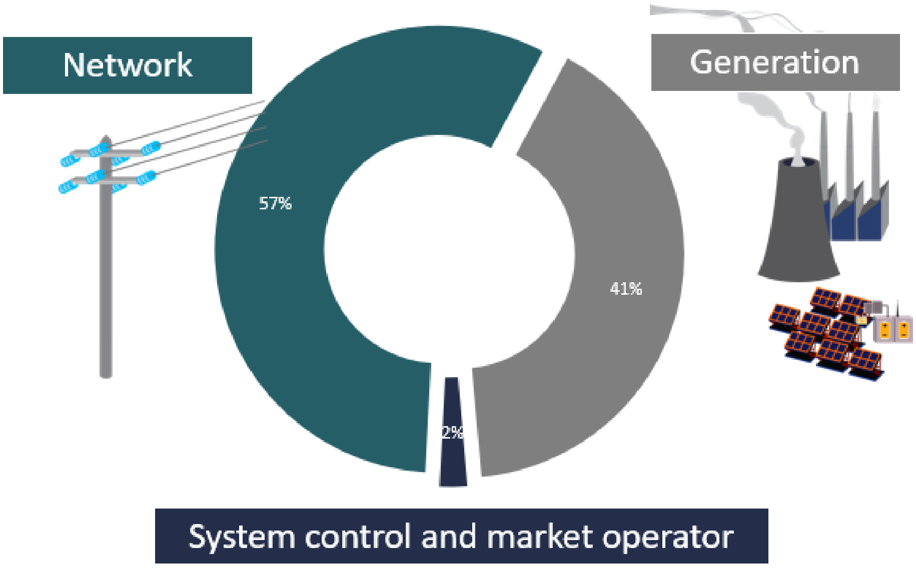
NTESMO plays a critical role in ensuring the security and reliability of power in our regulated regions. The system controller operates in Darwin-Katherine, Alice Springs and Tennant Creek. Its primary responsibility is to ensure sufficient generation and essential system services to securely meet demand 24 hours a day. This requires real time operation and control, forecasting, planning and preparing and reporting. The market operator undertakes 'virtual settlement' in the Darwin-Katherine region only, enabling financial certainty for market participants. The Market Operator also undertakes registration of market participants. **Figure 5** depicts the activities of the System Controller and Market Operator in the electricity system.

Figure 5 – NTESMO's role in the power system



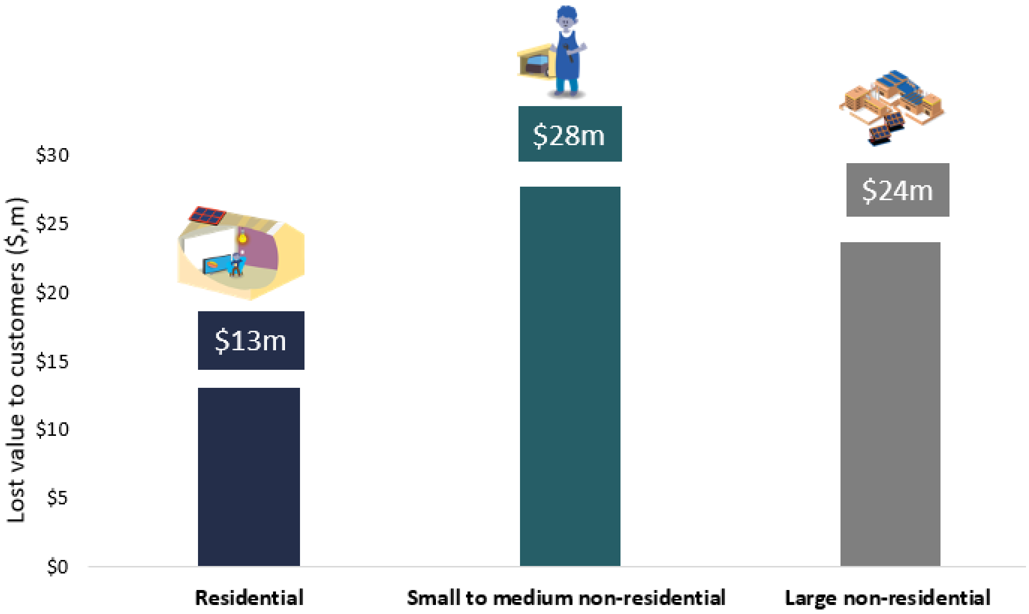
NTESMO comprises a very small portion of the energy bill in the regulated regions as seen in **Figure 6.** For major customers in Darwin-Katherine, that are not subject to the NTG Pricing Order, the NTESMO charge is currently about two per cent of the total electricity bill.

Figure 6 – Contribution of sectors to the energy bill of a typical major customer (%)



The criticality of our system control functions is underscored by the consequence of system power outages. For example, an eight hour outage in Darwin-Katherine is estimated to impact the economy by $60 million due to the loss of value experienced by small and large electricity customers. **Figure 7** demonstrates the loss in value by customer type.

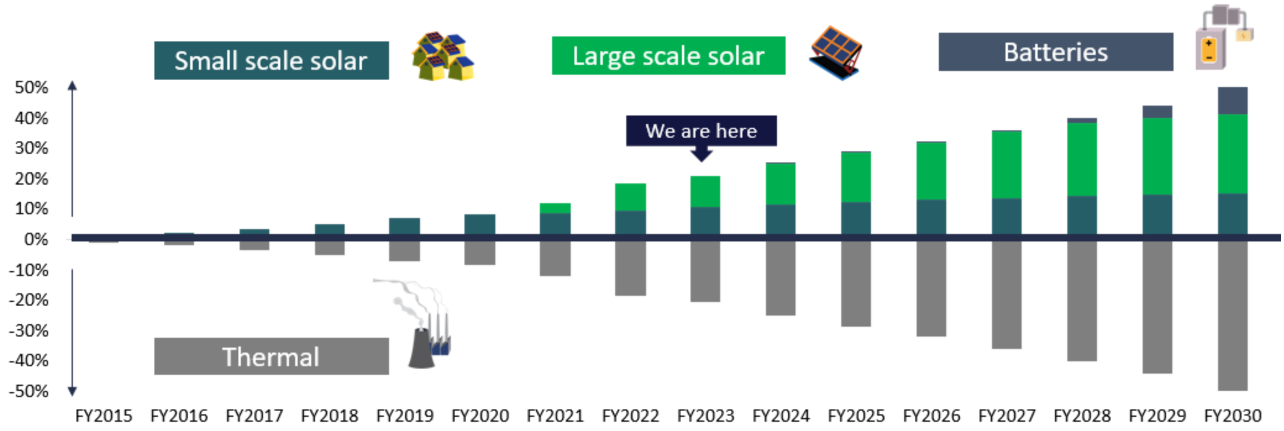
Figure 7 – Loss in value to customers from an 8 hour outage in Darwin-Katherine ($ million, nominal)



1.3 Changing role of NTESMO in the NT electricity system

In our first consultation paper, we discussed pivotal changes impacting NTESMO's system control and market operator functions. Of primary importance is the change in the generation mix. As depicted in **Figure 8**, since 2015, renewable sources of generation are displacing higher emission thermal generation. The Darwin-Katherine Electricity System Plan forecasts that 50 per cent of demand will be met through a mix of small scale solar, large scale solar, and storage batteries.

Figure 8 – Changing mix of generation



The change in generation mix impacts our ability to operate and control a secure power system. These challenges relate to the inability of renewable generation to provide essential security services, together with the intermittency of production due to cloud cover. Our system controllers are required to make more complex decisions in real time to ensure the security of the power system. As explained in **Chapter 5**, this has required us to invest in transitional tools that improve our decision making. In the longer term, we will be investing in a new Territory Dispatch Engine to integrate and automate decision making.

Our market operator functions have also faced challenges in the current regulatory period. The installation of smart meters significantly increases the volume of data that our systems must handle to perform the virtual settlement function. For example, an accumulation meter is read four times a year. In contrast, a smart meter can produce thirty-minute intervals or approximately 17,520 data points. Further, there are more participants in the market that are reliant on our virtual settlement function. As discussed in Chapter 5, we have seen a need to invest in a new settlement system to replace our bespoke Excel spreadsheet that is no longer scalable to meet our compliance obligations.

1.4 Process to set regulated charges

We recover our costs of performing NTESMO functions through regulated charges approved by the Commission. The Commission's regulatory determination sets NTESMO's allowed revenues for the System Controller and the Market Operator respectively for each regulatory year based on an assessment of efficient costs and revenue. The Commission establishes an indicative charge by dividing the approved revenue by the forecast energy consumption for the applicable region that the charge applies.

Each year, NTESMO puts forward a pricing proposal seeking the Commission's approval of regulated charges. The approved charge includes adjustments for actual energy volumes, under or over recovery amounts, and inflation.

The determination on NTESMO's allowed revenue for the current regulatory period (2019-20 to 2023-24) [4] was made by the Commission on 30 April 2019. This decision saw an increase in system control and market operator charges after remaining constant in nominal terms for 19 years.

The current approved charges for NTESMO functions for 2023-24 are shown in Table 1. The current charges are a relatively simple $ per kWh consumption metric and are only levied on retailers. The System Control charge is levied for energy used from the three regulated electricity systems (Darwin-Katherine, Tennant Creek and Alice Springs), whereas the Market Operator charge is only levied for energy consumed on the Darwin-Katherine electricity system. This metric is measured at the retailer's customer's meter.

Table 1: Approved 2023-24 NTESMO charges (nominal, excludes GST)

NTESMO function	Charge for 2023-24
System Control	$ 0.005214 per kWh
Market Operator[1] [1]Component only paid by customers supplied in the Darwin-Katherine regulated system	$ 0.000552 per kWh

The Commission will need to review and approve NTESMO's allowed revenue and tariff structure from 2024-25 onwards. While the legislative provisions governing NTESMO's cost recovery does not stipulate a definitive regulatory process and decision-making timeline, the Commission has indicated its preference for undertaking a robust industry consultation process and the allowance of a minimum of 12 months for the determination process.

Chapter 1 - Questions for stakeholders

1. What further background information would be useful to include in our upcoming regulatory proposal in December 2023?
2. Should we include a concise plain English 'customer overview' to accompany our regulatory proposal?

[4] Available at https://utilicom.nt.gov.au/publications/reports-and-reviews/final-decision-2019-system-control-charges-review

2. Stakeholder feedback

Our first round of consultation focused on NTESMO's strategic response to the rapid changes impacting the NT electricity system. Our stakeholders acknowledged a need for NTESMO action to facilitate change but wanted us to be mindful of costs and conscious of customer impacts. We also sought feedback from customers on framework issues with our upcoming regulatory proposal.

NTESMO's services and regulated charges are important issues for our customers and market participants. For this reason, we are seeking stakeholder feedback in a series of consultations on key issues ahead of our upcoming regulatory proposal.

We published a consultation paper on 17 May 2023 to kick-start our first round of consultation. We described the key challenges impacting the operation of the power system and our role as market operator. This included managing our transition to a renewable energy system and meeting our compliance obligations to settle the market. We also set out key issues with the framework for the next regulatory proposal including the structure of the regulatory proposal, mechanisms to manage uncertainty in the reform process, and changes in our charging structures.

We convened an industry and major customer forum on 30 May 2023 to talk through key issues and gather feedback from our stakeholders. We received valuable feedback on the day, which has been incorporated into this second consultation paper. NTESMO also met with a wide variety of stakeholders in one-on-one meetings, particularly stakeholders who could not attend the workshop. We also received two written submissions on our consultation paper. Overall, we are very thankful for contributions to date, noting that our stakeholders are very time limited.

We discuss stakeholder feedback below, and then discuss the consultation process moving forward.

2.1 Feedback on adapting to changes in the NT electricity systems

In our first consultation paper, we identified the rapid changes impacting the NT electricity systems including the transition to 50 per cent renewable energy by 2030. Our consultation paper sought stakeholder feedback on key issues experienced by NTESMO and options to address them.

In our workshop, stakeholders acknowledged the pace of change in the Northern Territory market and its impact on NTESMO. Stakeholders expressed a sentiment to 'get on with it' acknowledging the need for response and action. However stakeholders noted that we should 'be mindful of costs', emphasising the need for robust cost benefit analysis to support investment options. Finally, stakeholders considered we should 'be conscious of impacts' in working through who and how transition costs are recovered.

In our workshop, we sought feedback on the direction of major investments including a new dispatch and control engine, and a new settlement system.

We presented an infographic which discussed a spectrum of investment options and the differences between the options:

- **Option 1: Hold off** - Put off investing in new systems until NTEM. Keep using and expanding current work-around tools to 'keep up' with growing renewables and settlement complexity.
- **Option 2: Minimum** - Invest in new systems before NTEM. New dispatch and settlement systems that meet the growing complexity in the market. Limit functionality to meet core needs, with the ability to upscale to meet more rigorous reform requirements.
- **Option 3: Regulation ready** - Invest in systems that pre-empt full NTEM requirements. New dispatch and settlement systems that anticipate the likely direction of regulatory reform.

Most stakeholders identified a preference for an investment profile between Option 2 (Minimum) and Option 3 (Regulation ready). In our qualitative discussion, stakeholders noted the high risks of holding off key investments, and considered that our systems should be configurable to changes in regulations without necessarily anticipating the requirements.

Importantly, a number of stakeholders noted the need for further information to allow them to better understand the return on investment, the need for more transparency on the business cases and associated costs, benefits and risks, as well as the impact of interim solutions on other market participants.

Based on this feedback, we consider there is qualified support for NTESMO to make key investments ahead of NTEM reform provided that there is sufficient business case justification. For this round of consultation, we have included our actual and forecast costs on major systems in our initial calculation of regulated charges, as discussed in Chapters 4 and 5.

2.2 Feedback on framework issues

We also raised other issues for feedback including the optimal length of the regulatory period, how to address uncertainty in scope and timing of NTEM reform, and changes in our charges structure. Finally, we noted that due to time delays we would submit an annual pricing proposal for the 2024-25 period to the Commission in September 2023, which would reflect the approved 2023-24 prices with an adjustment for inflation.

In general, the feedback at the workshop was diverse:

- Shorter regulatory period - Several stakeholders preferred a three-year period to enable a flexible response to NTEM reform and broader market uncertainties. However there was also support from other stakeholders for retaining the current five-year period to limit administrative burden, noting that other mechanisms could be used to manage uncertainty from NTEM reform.
- Two proposal process – Stakeholders generally recognised that the delay in the timing of our regulatory proposal would necessitate the need for a simple roll forward of prices in the first year of the regulatory period.
- Mechanisms to manage uncertainty - The majority of stakeholders agreed that cost recovery for NTEM reform and new obligations should be available in the regulatory period through appropriate mechanisms but sought information on practical examples.
- Changes in charging structures – Currently we levy charges on the retailer based on the level of consumption of their customer. Stakeholders did not express a strong view on whether the current arrangements should be changed, for instance by charging generators a portion of the levy or through the introduction of fixed charges.

We have considered the feedback of stakeholders in developing a preferred position for framework issues as identified in Chapter 3. We have sought further feedback on our positions.

2.3 Consultation process from here

The second round of consultation is a 'deep dive' into our initial calculation of regulated charges based on full cost recovery of key investments and activities. We show that regulated charges would increase due to incurring higher costs than our regulated allowance. In this light, our consultation is based on options to mitigate the bill impact, including principles for inclusion of cost recovery and deferral of revenue to future periods. We also identify our preferred position on framework issues.

Our first round of consultation was primarily focused on our large customers and industry participants, including a workshop and one-on-one meetings. In this round of consultation we will also seek feedback from our residential and small business customers. While customers consuming less than 750MWh have price protections in place under the NTG Pricing Order, we continue to value feedback on the direction of NTESMO and our approach for the upcoming regulatory period. We will be meeting with our Peoples Panels to identify key issues on the NTESMO proposal as a means of getting feedback from our smaller customers.

Based on stakeholder feedback, we will submit the 2024-25 pricing proposal for the first year of the regulatory period in September 2023, consistent with the approach to roll-forward current prices with an adjustment for inflation. We will also use stakeholder feedback to help develop our comprehensive regulatory proposal for the next regulatory period, which is due in December 2023. We expect that the Commission's determination process will allow further feedback from stakeholders over the course of the assessment period.

Chapter 2 - Questions for stakeholders

3. Do you support NTESMO's consultation approach, including publication of consultation papers and workshops?
4. How can we improve our engagement going forward?

3. Framework and approach

There are significant uncertainties on the timing and scope of NTEM reform that will impact our costs in the next regulatory period. This has been a key consideration in developing a preference for a shorter regulatory period, mechanisms to cater for cost uncertainty within the regulatory period, and proposing no material changes to our levy method and charging structures.

As discussed in the previous chapter, NTESMO sought stakeholder feedback on framework options for the next regulatory determination. We noted that we are operating at a time of significant change in the NT electricity market and considerable uncertainty on the scope and timing of NTEM reform. Accordingly, we had put forward options on how to address uncertainty.

In this consultation paper, we seek feedback on our preferred positions on the framework for the next regulatory proposal as outlined below.

3.1 Two-phase process for next regulatory determination

We experienced some delays in commencing this process, meaning it is unlikely the determination process would have been completed with sufficient time for new charges to commence from 1 July 2024. Consistent with the Commission's preference for addressing this issue, we are proposing a two-phase process for setting prices in the next regulatory period:

- 2025-26 pricing proposal – We would submit a pricing proposal to the Commission for the first year of the next regulatory period. This would be based on rolling forward the approved 2023-24 prices in the last year of the current period and applying an adjustment for inflation. This would be submitted to the Commission in September 2023.
- Revenue proposal for the next regulatory period – This would provide a detailed approach to deriving the revenue requirement for the next regulatory period. The Commission would make a determination on the indicative tariffs to apply from 2026-27 to the end of the regulatory period, taking into account an adjustment for the 2025-26 year.

3.2 Shorter three-year regulatory period

Our preferred position is to apply a three-year regulatory period commencing 1 July 2024 to 30 June 2027. The key reason for a shorter period is continued uncertainty with the timing and scope of NTEM reform. We expect that by the end of a three year period, we would be in a better position to understand the impact to NTESMO from major NTEM changes. We would be able to engage with our stakeholders on changes to our costs and explore options in readiness for the following regulatory period.

A further reason for our preferred position is that it allows us to better utilise existing resources in our regulatory team to develop the NTESMO proposal. A key reason for the delay in developing our NTESMO proposal was limited regulatory resources while we simultaneously prepared our proposal to the AER for electricity network services.

3.3 Mechanisms to manage reform uncertainty in the next period

Despite the shorter regulatory period, we expect that some NTEM or broader market reform may impact our costs in the 2024-25 to 2026-27 regulatory period. In our first round of consultation with stakeholders we noted that the national regulatory framework for electricity networks includes mechanisms that enable a network to seek additional revenue for material changes in circumstances.

Our preferred position is to apply two mechanisms available in the national framework for regulating electricity networks to our upcoming regulatory determination:

- Cost pass through – This would allow NTESMO to seek recovery of costs for changes in events that are defined in the determination including a regulatory change event. We would only apply for a pass through if the estimated cost is higher than 1 per cent of revenue in the regulatory year that the event occurs.
- Contingent project – This would allow NTESMO to seek recovery of costs for a foreseeable project with a reasonable probability of occurring in the period, but where there remains significant uncertainty on costs, timing or scope.

Stakeholders requested an understanding of events that may give rise to either mechanism. Key examples include changes in regulation that require NTESMO to change its organisational structure, perform a new system planning role, or implement changes to give effect to new essential system services.

3.4 Maintain current approach to charging structures

Currently, NTESMO's regulated charges are levied on the retailer based on the consumption (kWh) of their customers. In our initial consultation, we asked stakeholders whether we should be considering changes to our charging structures including whether we should seek a portion of recovery from generators, or include a fixed charge in our tariffs.

Stakeholders had diverse opinion on whether we should change our current approach to charging structures. In particular, stakeholders noted the practical complexity of seeking generators to pay a portion of our regulated charges given existing power service agreements in place between retailers and generators.

We consider that reform of structures requires more detailed consideration. Given that our proposal is due in December 2023, we have formed the view that there is insufficient time to undertake detailed consultation on changes. For this reason, our preferred position is to maintain our current approach to charging structures.

Chapter 3 - Question for stakeholders

5. **Are there any elements of our preferred positions that NTESMO should re-consider and why?**

4. Charges and bill impacts

Our initial calculation indicates a material increase in our regulated charges for both System Control and Market Operator functions. The key driver relates to significantly higher costs than provided for in the Commission's regulated allowances for the 2019-24 current regulatory period, and the 2024-25 year. We have sought to recover six years of revenue shortfall in the remaining two years of the next regulatory period.

In our first consultation round, we noted that our costs in the 2019-24 period have been significantly higher than the revenue approved in the Commission's determination. This has been due to rapid changes in the NT electricity system that have required new activities and investments to meet our system control and market operator functions. In this chapter, we discuss how recovery of the shortfall in revenue has led to higher charges in the next regulatory period. In Chapter 5, we provide more detail on the cost drivers.

4.1 Methodology

The purpose of preparing indicative charges is to seek feedback on our methods, and to provide customers with an early view of the bill impact. We note that further detailed work is still being undertaken on the costs we have incurred in our financing systems, and any need for manual adjustments.

There are three key elements underlying our initial calculations:

- **Cost recovery of shortfall in revenue** – The revenue cap set by the Commission for the 2019-24 period and interim 2024-25 regulatory year will be significantly lower than the costs we incur. As discussed in Chapter 5, we consider our activities were a prudent and efficient response to our circumstances, and that we should be entitled to recover our actual costs. Therefore, as a starting point we have calculated the shortfall in revenue based on our actual and forecast costs and incorporated this into our charges for the next regulatory period.
- **Building block approach** – In our 2019-24 determination, the revenue allowance was based on operating expenditure only. For the next regulatory period, we are proposing to use an alternative method termed the 'building block' approach consistent with the national framework for regulating electricity networks. The method provides an allowance based on operating expenditure, financing costs of past and forecast capital expenditure, and tax costs. For operating expenditure, we will be using the last year of audited actuals (FY23) to determine a base year for operating expenditure, and then applying step changes and trends to determine forecast operating expenditure.
- **Apportioning costs to Market Operator** – The Market Operator regulated charge only applies to customers in the Darwin-Katherine network. In the current period, our accounting practice has been to allocate a higher proportion of expenditure to Market Operator for Rule developments, NTEM reform and interim tools to manage renewables. In our initial calculation, we have re-mapped these costs to System Control unless there is a clear link to a market operator function. This is based on our view that the primary driver of costs relates to managing renewables in all regions, and that Rule development is a function of system control.

4.2 Charges and bill impacts - full cost recovery

Figure 9 set outs the initial calculation of charges for the last two years of the current charges that would apply to the FY25 to FY27 period for system control and market operator compared to previous approved charges in this financial year (FY24). We have used actual costs from FY20 to FY23, and forecast costs from FY24 to FY27.

Figure 9 – Initial calculation of regulated charges in next regulatory period compared to current period (cents/kWh, nominal)

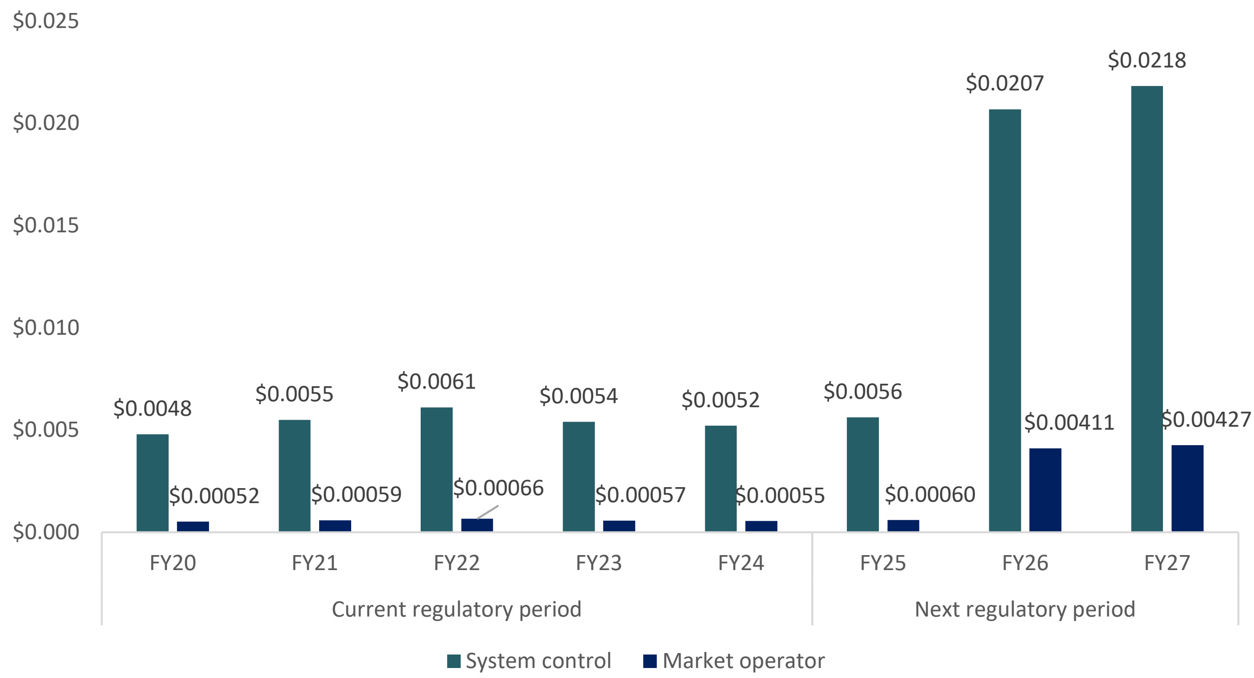


Table 2 identifies the bill impact for typical customers in each of our tariff class segments, commencing with the approved regulated charges in FY24. The FY25 price reflects the interim roll forward of approved prices using an adjustment for inflation.

Customers consuming less than 750MWh would be subject to the price protections currently available under the NT Pricing Order. This reflects both the System Controller and Market Operator charges. A customer in Alice Springs or Tennant Creek would have a lower bill as it would not be subject to the Market Operator charge.

Table 2 – Bill impacts from initial calculation of revenue charges.

Customer Type	FY24 (Current approved)	FY25 (Roll forward)	FY26	FY27
Small residential customer (8.5 MWh/pa)	$49	$53	$211	$222
Large residential customers (15MWh/pa)	$86	$93	$372	$392
Small medium business (30MWh/pa)	$173	$187	$744	$783
Medium business (150MWh/pa)	$865	$933	$3,720	$3,916
Large commercial and industrial (500MWh/pa)	$2,883	$3,109	$12,402	$13,052
Industrial (1000MWh/pa)	$5,766	$6,218	$24,803	$26,104
Large industrial (6000MWh/pa)	$34,596	$37,305	$148,819	$156,622

It is important to contextualise the increase in regulated charges for our portion of the bill. Our current approved charges comprise about 2 per cent of the energy bill for small residential customers, and even less for larger customers. Under our initial calculation of regulated charges, NTESMO's contribution of the energy bill would increase from 1 to 2 per cent of the bill to 6 to 8 per cent of the bill, depending on the customer tariff class.[5]

4.3 Explaining the rise in regulated charges

Our calculation of a step change in charges in FY26 relates to seeking cost recovery of a shortfall in approved revenues under the 2019-24 regulatory determination, and the subsequent roll forward of regulated charges for the first year of the next regulatory period. We explain each of these factors below.

Shortfall in approved revenue for six years

In November 2019, the Commission approved revenue and indicative prices for the 2019-24 period. At the time, there was uncertainty on the forecast uptake and mix of renewables in the NT energy system and the timing of NTEM reform. The underlying assumptions of Power and Water's revenue proposal were:

- Renewable energy uptake was likely to accelerate as we neared 2030 but would not increase significantly in the 2019-24 determination period.
- The current systems and personnel would be adequate until the NTEM reforms occurred.
- NTEM reforms would occur in the 2019-24 determination period and would address the transition to renewables reform and system requirements.

The Commission approved our revised proposal on the basis of our operating costs including personnel, direct costs (professional fees) and corporate overheads. At the time, the Commission recognised that more personnel would be required to manage new activities including the transition to renewables.

The Commission recognised that NTEM reform was likely, and that this would likely set additional requirements for the System Controller and Market Operator. For this reason, it established a pass through mechanism for when NTEM reform passed.

Since the Commission's determination, there have been significant change factors that required us to incur additional costs. These are discussed in depth in Chapter 5, but largely relate to the need to manage growing renewables in the NT electricity system, the need to update our settlement system to meet our compliance obligations, and the need to support Rule developments and NTEM development. In the absence of expected NTEM reform, we have had no trigger to recover these additional costs.

Based on our calculation of actual costs to FY23 and our estimate of costs in FY24, the combined revenue required would have been $85.1 million (FY23, real) for both system controller and market operator functions. The allowance provided by the Commission in the 2019-24 determination was $57.2 million, representing a shortfall of $27.8 million (FY23, real).

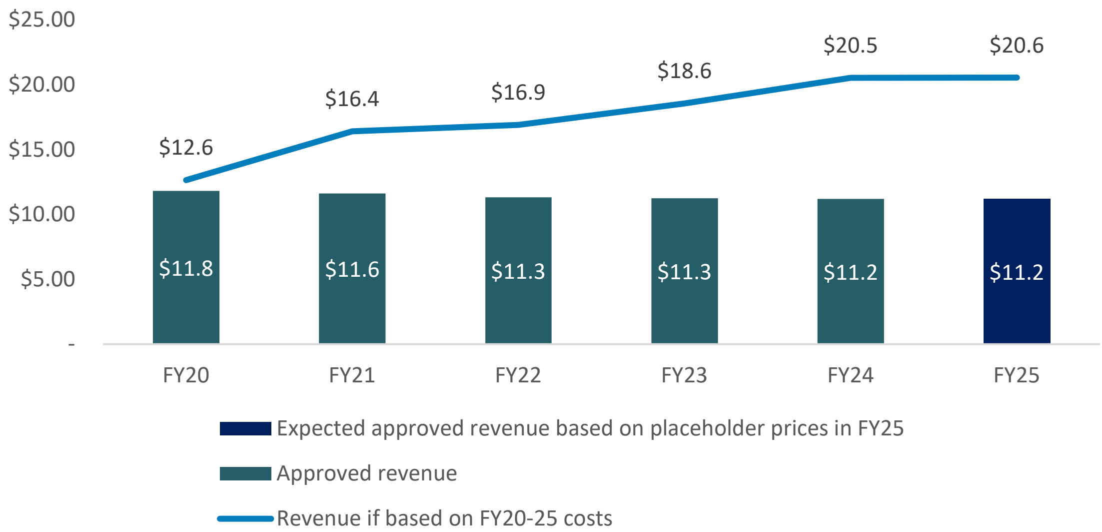
The issue is exacerbated in the first year of the next regulatory period (FY25). Our forecast costs for system control and market operator in FY25 results in a calculation of revenue of $20.6 million (FY23, real). We will be seeking approved prices in FY25 based on a roll forward of FY24 prices, and an adjustment to

[5] This calculation assumes that the Australian Energy Regulator approves our current regulatory proposal for network services. We have assumed that other costs do not increase above inflation.

incorporate forecast inflation. The outcome is an approved revenue of $11.2 million (FY2023, real) representing a further shortfall of $9.4 million.

In total, the shortfall in revenue across the 2019-24 and FY25 year is $37.2 million (FY23, real). **Figure 10** identifies the shortfall in revenue for each regulatory year.

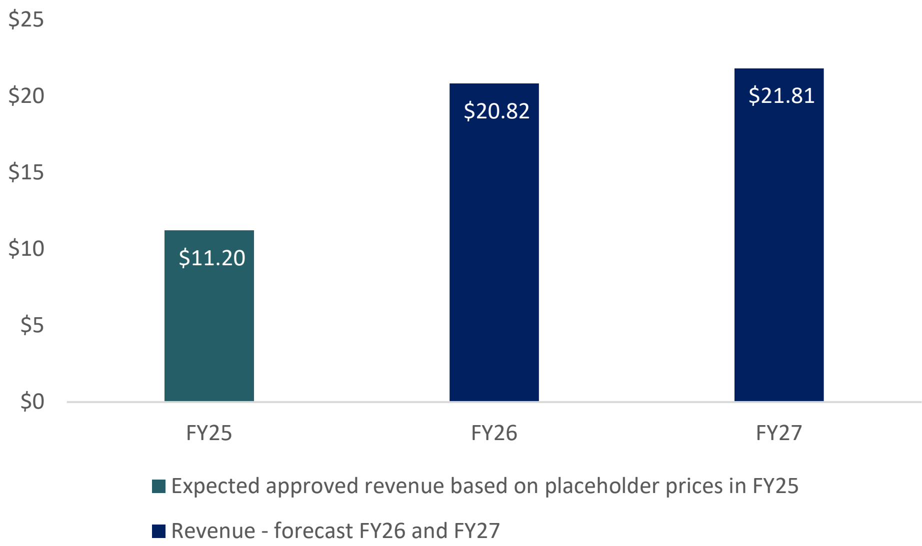
Figure 10 – Shortfall in revenue between FY20 and FY25 ($m, real 2023)



Transition to higher allowance in FY26 and FY27

The second issue relates to the change in approved revenues in the last two years of the next regulatory period. In FY25, the interim regulatory allowance based on a roll-forward of FY24 approved prices is $11.2 million. In FY26 and FY27, our combined revenue calculation for System Controller and Market Operator is $20.8 million and $21.8 million respectively. This can be seen in **Figure 11**.

Figure 11 – Transition to higher revenue allowance in the next regulatory period ($m, real 2023)

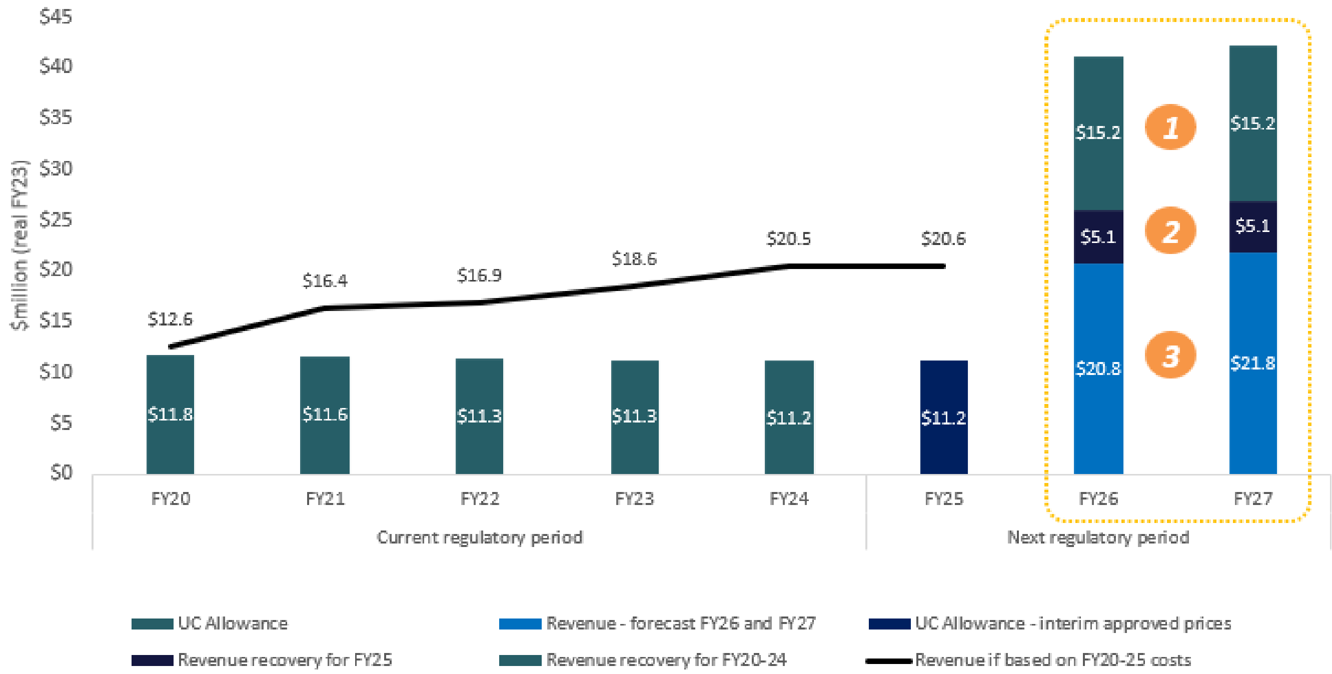


Combined impact

Figure 12 shows the combined impact:

- The shortfall in revenue for the 2019-24 period is collected evenly over the last two years of the next regulatory period, representing a total of $30.4 million, after adjusting for the net present value of the shortfall.
- The shortfall in revenue for 2025-26 approved prices is collected evenly over the last two years of the next regulatory period, representing a total of $10.2 million, after accounting for the net present value of the shortfall.
- The forecast revenue in 2026-27 and 2027-28 are included in the last two years of the regulatory period, reflecting an increase of $9.6 million.

Figure 12 – Combined impact of shortfall in approved revenues and transition to higher allowances



1 **Under-recovery in FY20-24 current period**| The Commission provided an allowance of $57.2 million. Based on full cost recovery, our revenue would have been $85.7m. The revenue shortfall is recovered in FY25 and FY26 **(+$30.4m*)**

2 **Under-recovery in FY25**| The roll forward of prices by CPI results in an under-recovery compared to forecast costs, which is also recovered in FY25 and FY26 **(+$10.2m*)**

3 **Increase in allowance between FY25and FY26**| The regulated allowance increases as we transition to full cost recovery **(+$9.6m)**

*This is based on the NPV costs of delayed recovery

Chapter 4 - Questions for stakeholders

6. **Do stakeholders consider it fair for NTESMO to recover a shortfall in approved revenue and why?**
7. **Do customers support our approach to allocate Rule development, NTEM reform advice, and managing renewables expenditure to System Control, unless there is a clear link to the market operator function?**

5. Drivers of higher costs

NTESMO has been responding to changes in the NT regulated electricity systems, including a rapid transition to renewables and increased settlement data from smart meters. This has required us to undertake new activities and invest in systems to meet our obligations. Further, we have had to consider how system control Rules should be amended, while also providing expert advice to assist NTEM reform. These drivers have also impacted our personnel and corporate costs.

As discussed in the previous chapter, our initial calculation of charges contemplates recovery of a shortfall of revenue compared to the allowances set by the Commission. We noted that the uptake of renewables has been faster than anticipated and has preceded the implementation of NTEM reforms. This led to considerable challenges in managing the power system, which we had anticipated would be addressed by NTEM reform. It was anticipated that NTEM reform would provide a trigger to recover the costs associated with managing a more complex market. However, NTEM reform has not been finalised, and the market and power system has been changing more rapidly than anticipated.

5.1 Transition to renewables

The System Controller is responsible for maintaining power system security. The power system must operate within a defined technical envelope, catering for disruptive events such as the disconnection of a major power system element.

There has been a significant acceleration in renewables in the NT regulated systems. Small and large scale solar has displaced thermal generation. This has created challenges for managing the power system within secure bounds. The key issue is that renewable solar does not provide the inherent power security services that thermal generation provides. Further, renewable solar is inherently intermittent, with production dependent on provision of sunshine.

In the current regulatory period, we developed transitional tools to provide interim capabilities while we investigated a prudent long-term solution to managing increasing uptake of renewables. The transitional tools were required to control the power system to manage the growth in behind the meter solar over the short to medium term, as well as the integration of the grid-connected renewable energy generators. These transitional tools support the System Controller's manual intervention to schedule generators online to meet operational demand and maintain power system security. They are specific to the dispatch of grid-connected renewable generation, capacity forecasting and near real time operational demand forecasting.

The transitional tools are limited in their capability and functionality. They have played an important short term role to manage increasing renewables, but are not effective in the long run to control the power system. By 2030, the NTG has a policy objective to achieve 50 per cent of electricity consumption from renewable energy. This will require further displacement of thermal generation with renewables, and the need for new assets such as synchronous condensers and batteries to keep the system secure and efficiently dispatched.

Accordingly, NTESMO has been investigating and developing a Territory Dispatch Engine (TDE) to provide a long term solution to controlling the regulated power systems. The transitional tools will be leveraged to build an efficient, integrated solution that is less reliant on manual decision making. Work is under way to finalise the specifications for the TDE to drive efficient and secure outcomes in the power system. Consistent with stakeholder feedback, the specifications of the TDE are configurable to NTEM reform requirements in the future. While the system is being developed, we will continue to evolve our transitional tools to keep pace with the increased uptake of renewables.

5.2 Settlement complexity

Under the I-NTEM framework, we are required to provide data to facilitate 'virtual' settlement of market participants in Darwin-Katherine. To date, we have used a Microsoft Excel spreadsheet to perform calculations based on energy consumption of customers, allowing us to issue virtual invoices to retailers and credit notes to generators.

This was contemplated as a short term measure until NTEM reform provided an understanding of our future compliance obligations. We recognised that a simple Excel spreadsheet would have challenges in accommodating smart meter data. Smart meter data provides energy consumption at 30 minute intervals, as opposed to accumulation meters which are manually read on a quarterly basis. When I-NTEM commenced we only had 1,500 smart meters, a small fraction of the meter population.

As smart meter penetration grew, we developed a custom-based Excel version that could accommodate increased data requirements. This included engaging a vendor to customise and enhance Excel with visual basic scripts to support settlements of up to 19,000 smart meters. We had considered this was a prudent short term solution while we awaited the specific requirements of NTEM reform.

Due to the delays in NTEM reform, we recognised that the custom-built Excel spreadsheet was reaching end of life. The key driver was that it could no longer support the expected significant rise in metering data stream inputs, with an expectation that Power and Water will install a smart meter for all connections by the end of 2035. Further limitations included:

- It is not inherently secure.
- It does not conduct the required validation to support the data processing required to conduct the market settlements and ancillary (essential) services calculations.
- It is unable to support settlements delivery in time due to slow processing, which has resulted in the need for an agreement with some participants that they will receive invoices with incomplete or missing data.
- It does not deliver transparency to customers in the settlement of commercial transactions.
- The customised Excel version is no longer being supported by the vendor who developed the visual basic scripts. This is based on a view that the current system was not designed for long term use with any further development of the system slow and inherently risky.

Our business case sought to identify potential options to address the issue including through 'off the shelf' or bespoke settlement systems. Based on a review of vendor offerings, we identified that the best option was an 'off the shelf' solution.

The new settlements system will reduce the operating time and resource effort of the settlement team through greater automation and integration with the MSATS data feeds, better exception management tools and reporting. Similar to the TDE, the system will be configurable to NTEM specific requirements.

5.3 Supporting Rule changes and NTEM reform

Under the SCTC, NTESMO has an obligation to review the need for changes to the code, together with proposing changes for approval by the Commission. We have incurred costs relating to this function, in particular in response to incident reporting, and more generally in response to addressing regulatory uncertainty with managing renewables.

We have also assisted policy makers with issues relating to NTEM reform. Given our technical expertise and data, it is vital for customers that NTESMO actively engage with policy makers on NTEM reform and provide resources where required.

Increased personnel

In our 2019-24 determination, the Commission acknowledged that NTESMO would require increasing staff numbers to meet new challenges including the NT's transition to renewables. However, our personnel costs are forecast to be higher than allowed for in the 2019-24 determination due to:

- Increased need for incident reporting;
- The need for staff to manage renewables and participate in the development of transitional tools and systems.

5.5 Corporate costs

NTESMO operates within the Power and Water corporation structure. A multi-utility provides a means of reducing total costs across essential services in the NT, helping to mitigate the inherent diseconomies of scale in the NT. This is because we can share the costs of corporate services such as finance, executive decision making, ICT and property across our business units. We use a cost allocation method to allocate our corporate costs to our essential services including NTESMO.

In the 2019-24 period, we incurred higher corporate costs than provided in the Commission's determination. There are two drivers:

- Under our Cost Allocation Method, NTESMO was allocated higher corporate operating costs due to higher corporate costs overall in the period, and due to a greater proportion of staff in NTESMO compared to other business units indicating an increased share of corporate services.
- In our 2019-24 determination, we did not include the financing costs associated with our past and forecast investments. In respect of past capital expenditure, we failed to include the returns required to fund the existing value (regulatory asset base) of corporate assets allocated to NTESMO functions. Similarly we did not forecast an allowance related to capital investments that had an allocation to NTESMO functions.

Chapter 5 - Question for stakeholders

8. What further information should we provide in our regulatory proposal to explain our cost drivers?

6. Options to mitigate bill impacts

We want to test options with stakeholders on mitigating bill impacts to customers from higher NTESMO regulated charges. We are seeking feedback on the principles we should apply to identifying the recovery of shortfall in revenue. We are also seeking feedback on mechanisms to defer revenue recovery to future regulatory periods.

In Chapter 4 we identified that our costs have been higher than anticipated and that this has resulted in a shortfall in revenue compared to the allowances set by the Commission. While we consider there are strong grounds to seek retrospective recovery, we recognise that the spike in regulated charges may result in higher electricity bills, particularly for our larger customers not subject to the NTG Pricing Order.

Accordingly, we are seeking feedback on how best to balance the need to recover a shortfall in revenue with managing bill impacts.

6.1 Principles for seeking shortfall in revenue

NTESMO has responded to circumstances that were not anticipated at the time of our determination. The costs we have incurred have assisted us to meet our regulatory obligations in a changing energy market, and prepare for the accelerated rate of change to 2030. This has consequential benefits for our customers in helping us unlock low-cost renewables through a secure power system and enable dynamic tariffs from smart meters.

While we have identified our key drivers of costs, we have not undertaken a comprehensive review on the contribution to higher costs, or the efficiency and prudency in each circumstance. We would like to discuss the key principles for costs we should include when calculating our revenue shortfall. We have identified the following principles:

- No double counting – We consider an important principle is to show that costs were not already provided for in the Commission's determination. For example, we should consider whether the Commission included higher costs for staff to manage renewables.
- Reasonably not foreseeable or certain – We should demonstrate that the activity or investment was not reasonably certain at the time of the previous regulatory determination.
- Prudent – We should demonstrate that the activity was prudent to undertake in our circumstances.
- Efficient – We should show that the costs were efficient in our circumstances.

We would like stakeholders to provide comment on whether these principles should be expanded.

6.2 Deferral of revenue to future periods

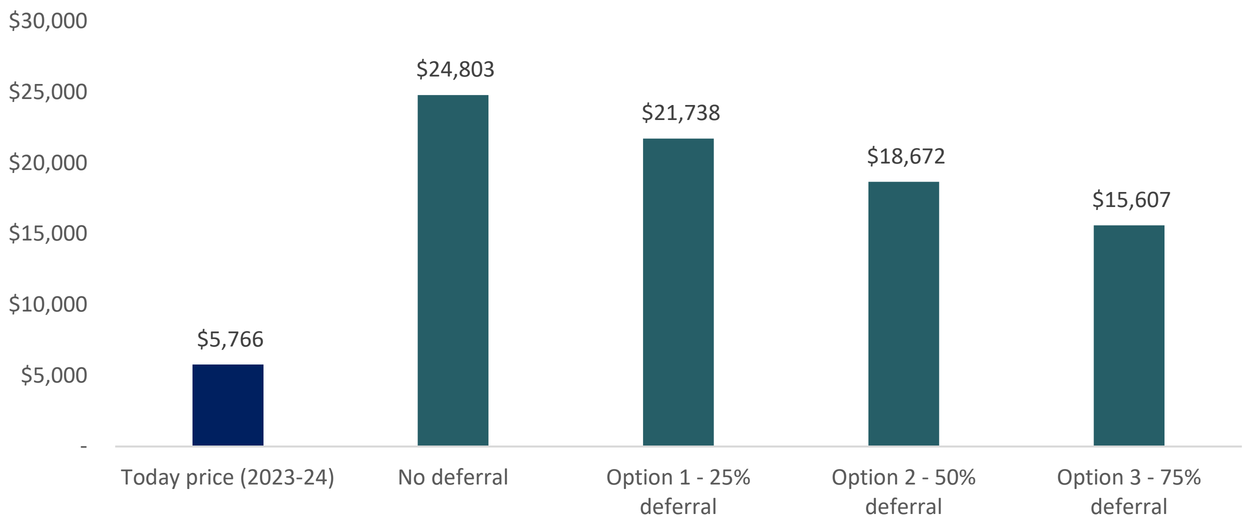
A further method to mitigate the bill impact in FY26 and FY27 is to defer revenue recovery to future years. This could be achieved by establishing a new asset class in our regulatory asset base equal to the deferred amount. We would receive a rate of return and depreciation on the asset value for the selected life of the asset class.

While this would reduce regulated charges in the next regulatory period, it would lead to higher charges in the following regulatory periods. We have developed the following principles to identify viable and sustainable options for stakeholders to consider:

- The deferral amount should be limited to the shortfall in revenue in the six years between FY20 and FY25, rather than apply to the forecast of revenue in FY26 and FY27. This ensures that we do not set regulated charges below our expected ongoing cost structure.
- The deferral amount should be less than 100 per cent. Full deferral would lead to similar issues in the following period with respect to higher regulated charges.

We consider that there are three viable options to mitigate bill impacts, as depicted in **Figure 13**. Option 1 would defer 25 per cent of the shortfall in revenue recovery into the next regulatory period, while Option 2 would defer 50 per cent and Option 3 would defer 75 per cent. The change in bills for a typical industrial customer consuming 1000MWh under each option are shown below relative to current approved prices today, and the bill impact if there was no deferral. This is based on both System Controller and Market Operator regulated charges, for an industrial customer in Darwin-Katherine.

Figure 13 - NTESMO bill impact for an industrial customer (1000MWh pa) in FY26 under deferral options compared to current charges in FY24 ($ per annum, nominal)



Chapter 6 - Questions for stakeholders

9. **Do you agree with the principles for seeking recovery of a shortfall in costs?**
10. **Are there any other principles we should consider?**
11. **Do stakeholders agree that we should consider deferring revenue recovery to future periods?**
12. **Do customers have a preferred option on the amount of deferral?**

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