SA Power Networks

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2020-25 Property Capex Forecast Regulatory Justification

2020-25 Revised Regulatory Proposal

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SA Power Networks

2020-25 Property Capex Forecast Regulatory Justification

Contents

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Executive Summary

We submitted our Original Proposal property forecast to the AER in January 2019 and the AER made a Draft Decision on that forecast in October 2019. The AER's decision did not accept our forecast and made no allowance for any property capex. The key concerns of the AER are:

- we did not sufficiently demonstrate the need for any property capital works to be undertaken; and
- we did not provide rigorous option analysis and cost-benefit analysis to support the proposed expenditure.

To address these concerns, we have revised our property forecasting methodology and classified property works into[1]:

- **Major project sites** – comprising the sites where major refurbishment of property pavements and associated external works and buildings are necessary; and
- **Minor project sites** – comprising the balance of sites requiring ongoing piecemeal refurbishment and upgrade.

The major works at four of the major property sites (Angle Park, Marleston North, St Marys and Clare) have been assessed and new business cases supporting the proposed works at these sites have been developed and submitted with this Revised Proposal[2]. We have also undertaken cost-benefit analysis of a range of options at these sites, including continuing with the business-as-usual approach, to ensure that the preferred option included in our forecast provides the greatest net benefit. All four business cases provide net benefits.

The minor project site forecast was based on a bottom-up forecast identified and developed by an independent quantity survey (and submitted with our Original Proposal).

For this revised proposal, we have also undertaken further top-down analysis, included property benchmarking and historical capex trending, which is aimed at validating that our revised forecast is reasonable and should reasonably reflect the NER capex criteria.

As a result of our revised approach we have also removed the following works (which were included in our original forecast):

- Seaford depot establishment;
- Gumeracha depot refurbishment;
- Some minor works items in our original cost build-up;
- Some items now being addresses in the current period (during 2019 and/or 2020); and
- The 10% contingency component.

Our Revised Proposal property capex forecast is $50.7 million (real June 2020), $1.6 million lower than our 2015-20 actual/forecast and $10.8 million lower than our original proposal. There are no associated opex step changes associated with our proposed capex program.

Our property portfolio includes 49 sites, of which approximately 58% were established more than 50 years ago. The capex forecast is required to address various needs at 39 of these properties. These needs are largely due to the advanced age of the facilities at these properties and primarily relate to:

[1] This classification should align with the classification used in our original proposal and used by the AER in its draft decision.

[2] The other major project site in our forecast is our main corporate offices at Keswick. The forecast at this site represents a continuation of the existing major refurbishment of this building, which commenced in the current period.

- the poor condition of some facilities and engineering systems
- inadequate systems, layout, and design for the current operations.

The needs impose various costs and risk on our business, in addition to increased reactive repair costs. These predominantly relate to safety risk and operational costs and risk. For the four sites noted above, we have quantified these costs and risk in performing our cost-benefit analysis.

In addition, this forecast should allow us to opportunistically address some facilities, which will not be designed, constructed or operating to current standards. It should also allow us to address other matters, where the risks due to non-compliance to current standards exceeds the cost of compliance. However, it is important to stress that this forecast is not aimed at achieving compliance to current standards across our property portfolio; this would require considerably more expenditure.

Our top-down analysis supports our view that our revised forecast is reasonable. We have been one of the lowest spending DNSPs on property over the last 10 years, possibly the lowest spending[3]. Furthermore, we are not forecasting the need for a material increase above historical levels. As noted above, our revised forecast is below our estimated capex for the current regulatory period and is 11% lower than our average per annum amount for the last 10 years[4].

Given the advanced age of many of our properties, we believe that the above results demonstrate that our revised property capex forecast should reasonably reflect the NER capex criteria. Furthermore, although our cost-benefit analysis demonstrates that there will be some localised benefits in terms of reduced opex (and improved supply reliability) at the major project sites, overall this will not outweigh the slight worsening that will occur across other sites as they continue to age over the next regulatory period.

[3] That is, when allowing for network scale and customer density

[4] On a real June 2020 basis as reported in our category analysis RIN.

1. Introduction

Purpose statement

We have forecast the need for $50.7 million (real June $2020) in capital expenditure (capex) to refurbish and upgrade our properties (excluding substations) over the next regulatory period (ie 2020/21 to 2024/25). This capex forecast compares to our estimate for the current regulatory period of $52.3 million (real June $2020).

The purpose of this document is to:

- summarise and explain this capex forecast;
- provide the justification for this forecast, including the reasons the expenditure is required, the options considered and the costs and benefits of each option and why the preferred option has been chosen; and
- explain how we consider this forecast should be treated in our revised regulatory proposal to the AER.

This document is supported by four site-specific business cases and associated cost-benefit analysis models that we have prepared for a selection of our sites where we are forecasting the need for a major refurbishment. These sites cover:

- Angle Park North;
- Marleston North;
- St Marys; and
- Clare.

These business cases cover more than 40% of our revised total proposed expenditure and provide more detailed explanations and justification for the forecasts associated with these properties.

The remaining forecast expenditure has been developed using 'bottom-up' estimates and is discussed in this document. Importantly, this document also provides the main explanation and results of top-down analysis that we have applied to verify that our revised forecast is reasonable.

Although we have reduced the overall property forecast from our original proposal, the supporting documentation to our original proposal is still relevant in terms of providing details of our property portfolio, how we manage and maintain this portfolio, and how we assessed issues at individual sites and developed a detailed bottom-up forecast for each site. We have not used this document to repeat these matters here.

Major and minor works components

To aid in the explanation of our forecast, we have classified the forecast expenditure into two components to align with the AER's review.

- Major project sites are those sites where we are forecasting the needs for a major refurbishment or upgrade of a significant portion of the site, and therefore, we would expect a significant improvement in the overall costs, risks and performance associated with that property.
- Minor projects site[5] represent the remainder of our properties and typically consists of the continued piecemeal reactive repair and upgrade of these properties that is necessary to maintain

[5] Note, the minor project sites classified here is more general than works that we define as minor works in our financial systems. Therefore, some caution is needed when reconciling between this document and our financial system; the specific work orders defined as minor works in our financial system will only encompass a very small portion of the minor projects discuss here

the prudent and efficient functionality of each property as it ages and our operations and available technology evolve.

We discuss the assignment of our forecast into these two categories further in Section 5, where we will discuss the development of our property forecast.

Structure of document

This document is structured as follows:

- In *Section 3 (How we have addressed the AER and stakeholder concerns)*, we summarise our understanding of the main concerns our consumers and the AER have with our original proposal and explain how we have addressed this in preparing the forecast for our revised proposal.

- In *Section 3 (Obligations)*, we summarise the legal obligations that underpin how we manage our properties and decide when we should refurbish or upgrade them.

- In *Section* 4 *(Overview of our property portfolio)*, we provide background information associated with our property portfolio, which is important for appreciating the significance of the property forecast. This includes the age profile of our properties and recent historical expenditure.

- We then, in Section 5 *(Development of our property capex forecast)* set out how we have prepared our property capex forecast, the issues it is addressing, the analysis we have undertaken, and the scope of works and costs within the forecast. In this section, we separately explain our forecast for the major and minor project sites. Importantly, for the major project sites, we explain the cost-benefit analysis we have undertaken on this component and summarise the results of this analysis.

- *In Section 6 (Top-down validation of our property capex forecast)* we explain the analysis we have undertaken to aid in validating our forecast. This analysis includes a benchmarking exercise using historical property expenditure reported by all DNSPs in their Regulatory Information Notices (RINs) and historical trending analysis. We also use this section to reference back to the AER's key concerns with our original proposal and explain how we have addressed these in preparing our revised forecast.

- The document concludes in *Section 7 (Regulatory treatment)* by discussing how we believe the costs and consequences of this program should be treated in our revised regulatory proposal to the AER.

2. How we have addressed the AER and stakeholder concerns

Appreciation of AER concerns with original proposal

In our original regulatory proposal, we included $61.5 million (real $2020) in our capex forecast to undertake refurbishment and upgrade works across our property portfolio over the next regulatory control period. We also provided supporting documents setting out the scope of the works and justification for these works.

The AER's draft decision has not accepted our forecast and made no allowance for any property capex. The key concerns of the AER are:

- we have not sufficiently demonstrated the need for any property capital works to be undertaken; and
- we have not provided rigorous option analysis and cost-benefit analysis to support the proposed expenditure.

More specifically, the AER assessed our original proposal expenditure in terms of:

- the five largest work components associated with five specific sites, which the AER classified as major projects and accounted for 65% of our forecast; and
- the remaining (35%) component, which it classified as 'minor projects'.

For the major projects, the AER's main concerns are:

- we have not demonstrated the needs at these sites; in particular, the AER considered that we were proposing non-compliance as the main need for major works, but we had not adequately explained the specific obligations that we were not compliant to, and how we were non-compliant;
- our options are "binary", being only the major upgrade or do-nothing, without considering other options in between these extremes; and
- we have not provided any quantitative analysis of the options; in particular the AER considers that we should have applied cost-benefit analysis to demonstrate that the benefits would exceed the costs.

In addition, the AER expressed concerns that:

- we included a 10% contingency in our cost build-ups, which it typically does not allow;
- we have not allowed for the EBSS contribution that would arise through reduced opex costs due to implementing the major projects in developing our capex forecast; and
- we have not sufficiently explained the top-down adjustments we made to our bottom-up property capex forecast, and how these related to these major projects.

For the minor projects, the AER's main concerns are:

- we have not established the need for this component; in particular, it noted that we included items such as landscaping, roof replacement, construction of undercover EWP parking and wash bays in our forecast without sufficiently explaining the need for these items; and
- some items in the forecast (eg landscaping) appears to be opex in nature, and as such, there would be an allowance for these works in its opex forecast.

Stakeholder concerns with our previous levels of over-forecasting

A significant concern raised during recent stakeholder consultations has been our previous significant over-forecasting of our property forecasts in our last two regulatory proposals to the AER. It is our understanding that these concerns underpin the more specific concerns with our original proposal raised by the AER and our stakeholders.

We have historically invested significantly less in property than our own forecasts predicted would be required:

- For the previous regulatory period (2010/11 to 2014/15), we underspent our forecast (which was largely accepted by the AER in its allowance) by approximately 30%; and

- For the current period (2015/16 – 2019/20), we have similarly underspent our forecast.

We discussed some of the reasons for the lower actual expenditure in the current period in our Original Proposal[6], and provided further information in response to AER information requests following the submission of our original proposal[7].

The reasons for the lower actual capex include changes to the assumed demand that underpinned some of our previous forecast[8] and management efficiencies[9]. This has allowed us to prudently defer some project works and reduce costs in some areas. Nonetheless, we acknowledge and accept that our previous forecasting methodology was not sufficiently robust.

In preparing our Original Proposal for the next regulatory period, we recognised these deficiencies and undertook a more aggressive peer review to make adjustment aimed at better replicating the likely effect of our governance and budgeting process[10]. This review led to a 28% reduction in the bottom-up forecast from $85.6 million to $61.5 million.

As we will explain further below, we have now made further improvements to our forecasting methodology for our revised proposal, including a top-down analysis. These improvements have resulted in a forecast that is now in line with our historical expenditure.

How we have addressed the AER and stakeholder concerns

We have reviewed our previous supporting documentation and have endeavoured to address the AER's concerns. We have revised our forecasting methodology and reduced our forecast. We consider that these changes have addressed the deficiencies in our previous forecasting methodology.

We have undertaken extensive further work and analysis to reassess the four major projects now planned for 2020-25 and the justification of the overall property capex forecast.

For the major projects, our revised methodology has reduced and altered the sites now proposed based on:

- **Existing site issues and needs** – we have reviewed the underlying site assessments and reconsidered and quantified the costs and risk driven by the major issues that drive the need;
- **Options** – we have developed a broader set of options for the major capital work components, including continuing with the business-as-usual approach and targeted remediation options; and
- **Cost-benefit analysis** – we have undertaken cost-benefit analysis of the major capital work components to demonstrate that our preferred option maximises the net benefit.

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[6] Section 7, Attachment 2, Supporting document 5.31 to our original proposal

[7] Eg, AER information request #002

[8] For example, the network demand in key geographical locations such as the Southern Metropolitan and Fleurieu Peninsula was lower than predicted. This enabled us to prudently defer the Seaford establishment and other works.

[9] For example, we delayed some projects to learn lessons from other construction works occurring during the current period and the construction of our new depot at Angaston. This enabled us to determine some lower cost construction methods, without compromising on the operational efficiency or fit-for-purpose nature of the works. An example of these learnings is our change over to lightweight construction methods instead of traditional bricks and mortar and investigating alternative pavement and drainage designs. These new design and construction methods are allowed for in our forecast.

[10] Section 8.2, Attachment 2, Supporting document 5.31 to our original proposal

To better justify our total property capex forecast and verify that it should reflect the outcomes of our governance and budgeting processes, we have undertaken further **top-down analysis** to verify that our forecast is reasonable, including:

- consideration of the age profile of our property;
- analysis of historical property expenditure profile and trends; and
- benchmarking of our property expenditure, based on the property expenditure reported by all NEM DNSPs in the AER's category analysis Regulatory Information Notices (RIN).

In addition to the improvements in our forecasting methodology, we have prepared new business cases for the major projects which we believe are a significant improvement on the previous documents. Most notably, the new business cases include:

- a greater focus on explaining the role of the sites in providing services to our customers;
- more detail on the issues at the sites, which drive the need, and how these issues affect risks and customer services, including the quantification of the costs and risks associated with the major issues;
- more detail on our evaluation of options and reasoning for our preferred option, including the results of our cost-benefit analysis for the major cost items; and
- a clearer explanation and quantification of the benefits achieved by our forecast.

Importantly, our revised methodology has resulted in a number of changes to the proposed capex forecast. From our further review and evaluation, we have removed:

- the new Seaford depot development, as we do not consider our expectation for the required demand that drives the need for this development is likely to be sufficient in the next regulatory period;
- the Gumeracha depot major refurbishment, as we consider there is some uncertainty in the continuing role and function of the Gumeracha depot following the completion of the new Angaston depot;
- some items in our cost build-up, as we consider the issues driving their need are insufficient to justify their inclusion;
- other items that we have addressed in the current period (or we plan to); and
- the 10% contingency component.

Overall, these changes have resulted in a further 18% reduction in our property capex forecast from $61.5 million in our original proposal to $50.7 million (real $June 2020) in our revised regulatory proposal. This revised capex forecast is lower than our estimate for the current regulatory period of $52.3 million (real June $2020).

3. Obligations

In this section, we discuss our obligations associated with managing our properties, including how we decide when we should refurbish or upgrade properties to maintain compliance to these obligations.

There are range of regulatory instruments we must have regard to when managing our property portfolio. These cover a range of matters associated with building and site design, layout, construction and operation. The key instruments are summarised in the table below.

Table 1 Key regulatory instruments

Form	Name
Legislation	• The Development Act 1993 (Section 53A) • Development Regulations 2008 (Regulation 80) • Disability (Access to Premises – Buildings) Standards 2010 • Work Health and Safety Regulations 2012 • Environment Protection Act 1993
Australian Standards	• Design for Access and Mobility AS 1428.1-2009 and relevant Supplements • National Construction Code (NCC) – Building Code of Australia (BCA) 2014 Volumes 1 and 2 • Car Parking Standards AS/NZS 2890. Part 1 & 2 (2004) and part 6 (2009)
Codes of Practice	• Safe Work Australia – Managing the Work Environment and Facilities. Code of Practice – Dec 2011

Many current instruments came into force after the construction of most of our properties. These facilities would have been constructed under different obligations, which often were less onerous. Many of the current instruments do not place legal obligations on us to correct non-compliances with facilities constructed prior to the instrument's enactment. However, some instruments, such as the National Construction Code, are applicable to new constructions or material alterations.

Nonetheless, current standards and regulations reflect current views of costs and risks, and the broader expectations of personnel within these facilities. Therefore, should an incident occur where we are considered non-compliant to current accepted practices and standards and this has been a contributing factor to the incident, then there is a far greater possibility that we will be deemed liable under our more general "duty of care" and "good industry practice" obligations.

Therefore, for existing facilities, we generally apply a risk-based compliance method. In this regard, we implement ongoing reviews of the compliance of our sites to current standards and regulations. This may identify significant non-compliance issues. Depending on the risks associated with these issues, we will build their remediation into our future works programs. How and when they will occur depends on matters such as:

- the non-compliance issues and whether we should be strictly complying;
- the risks of non-compliance, particularly safety and environment risks;
- the costs of non-compliance and remediations;
- future plans for the site; and
- current public perceptions.

For new constructions and developments (including refurbishments and upgrades), we will always ensure that these are strictly compliant with all current obligations.

We have attempted to develop our property capex forecast to align with this risk-based process.

Importantly, the key drivers of the need for the majority of the works in our forecast are not compliance related.

4. Overview of our property portfolio

In this section, we provide an overview of our property portfolio, including:

- the sites and their roles in providing services to our customers; and
- the indicative age profile of the properties
- the recent historical expenditure profile and associated major works, and the reasons for significant changes in expenditure levels.

The purpose of this section is to provide background information on the property portfolio, which we consider is important in appreciating the ongoing needs and expenditure levels, and the significance of our top-down validation analysis provided in Section 6.

This section explains:

- due to the predominantly rural nature of our network, we manage a large number of sites in order to efficiently provide services to our customer base.
- the majority of our sites are at an advanced age.
- we have undertaken limited major refurbishment and upgrade of these sites, and therefore we are at the early stages of the replacement cycle for our property portfolio.

Our property portfolio and its role in providing services to our customers

We own and operate a large distribution network, with a relatively sparse customer base. Our network stretches from Mount Gambier to the south of the State up to Port Augusta at the tip of the Spencer Gulf, then down to Port Lincoln and across to Ceduna to the west of the State, a distance of approximately 1,500km.

To efficiently manage this network and provide services to our customers, we operate 49 properties across the state.

These properties can be considered in terms of three broad types, as follows:

Field service depots	We have 30 field service depots spread out across our network:
	• 6 are located in the Adelaide metropolitan area; and
	• 24 are located in regional areas.
	The field service depots house the field crews and their vehicles, equipment and tools; and are used to store network spares and network "project" materials[11] for the local network.
	Depots have a range of facilities, including:
	• office and administration buildings, including toilets, changing rooms, showers and kitchens
	• workshops and undercover storage sheds
	• outdoor pavement areas for:
	  ○ equipment loading/unloading areas
	  ○ external storage areas
	  ○ field crew specialist vehicle parking

[11] "Project" materials relate to planned network activities such as customer connections, augmentations and replacements.

	○ staff parking. Our depots play a critical role in providing our services efficiently and rapidly to the local customer base, including connection services, common distribution services and network ancillary services. Importantly, the depots are critical to the reliability of supply to the local customers, with the field crews providing the response, restoration and repair of faults on the local network. Field crew can also operate outside their local areas, providing support services to other depot areas at time of high workloads (eg during storms).
Industrial properties	We have 10 industrial properties, which are all located in the Adelaide metropolitan area. Industrial properties provide a range of supporting services, including: • logistics and warehousing • heavy equipment and bulk equipment storage • stobie pole construction • equipment workshops • specialist major asset services (eg testing, maintenance, etc). Our industrial properties have a range of facilities depending on their purpose, which typically include: • administration buildings, including offices, toilets and kitchen facilities • warehousing facilities • workshops and undercover storage sheds • outdoor pavement areas, suitable for heavy vehicle movements and access, including: ○ equipment loading/unloading areas ○ external storage areas ○ specialist vehicle parking ○ staff parking. Our industrial properties play a critical role in providing our services efficiently to customers across our network, particularly major connection services and common distribution services.
Commercial properties	We have 9 commercial properties, which are all located in the Adelaide metropolitan area. Our commercial properties provide a range of predominantly office-based supporting services, including: • strategic asset management • engineering and technical services, including design and commissioning • customer support services • corporate services.

	Our commercial properties are typically office-type buildings, with associated parking facilities including, for example, a customer call centre and a network operations centre. Our commercial properties play a critical role in providing all our services efficiently to customers across our network.

We own most of our properties, with 37 owned and 12 leased. We prefer to own depots and industrial properties as this gives us greater flexibility in their maintenance and functioning (we only lease 2 of our 30 depots and 4 of our 10 industrial properties). Depots and industrial properties are specialised facilities and therefore, it is useful to be fully in control of their function and planning. These types of property are expensive to acquire and set up for long term use and need to be strategically placed geographically. As such, there are significant risks to do this through leasing arrangement where there is a possibility that the property could be sold, and we would have to move operations elsewhere. Our commercial properties are less specialised, and therefore, we lease a higher proportion of these properties (6 of the 9 properties are leased).

Property age profile

We do not have detailed information on the age of all our property assets. Nonetheless, the establishment dates of each site provide a useful guide to the overall age of our properties. The chart below provides this establishment age profile. We have also indicated four broad age bands, as follows[12]:

- young – early age phase of a property where we may not expect significant issues to be present and little need for reactive repairs
- aging – where we may begin to see aging issues and requirements for refurbishment of building components and reactive repairs to arise
- aged – where we may see assets nearing their end-of-life, and so issues and ongoing repair costs could start to initiate the need for a major replacement
- advanced age – where we would expect most assets to be at or past this end-of-life phase, and so major refurbishments and replacement will be necessary.

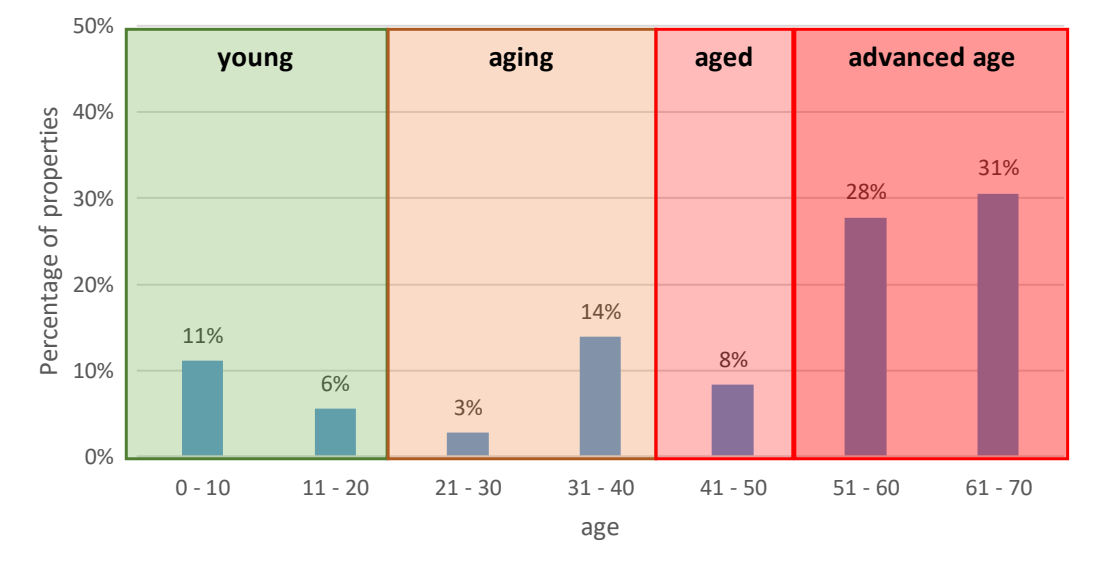


Figure 1 Property establishment age profile

[12] These indicative bands assume property assets will have average lives between 40 and 50 years. Some assets may have shorter or longer lives than the averages indicated here.

The key point to note from this chart is that we have a very large portion of our properties (67%) that were established more than 40 years ago and would be expected to be nearing the end of their useful life (without major refurbishment). Of these, 58% we established more than 50 years ago, with 31% established more than 60 years ago.

The oldest sites include Angle Park North (68 years), Marleston North (68 years) and Clare (53 years), which are three properties with major projects proposed for the 2020 to 2025 period. Angle Park North and Marleston North are both industrial sites and Clare is one of our regional depots.

The aging of properties and our overall property portfolio generally increases reactive repair costs, with larger refurbishment works being capitalised. But, typically, reactive building repair costs are not the primary driver of the need for major refurbishments and replacements. This is more driven by other costs and risks such as:

- Our depots and industrial properties have large external pavement areas, which have high vehicle traffics, forklift and pedestrian movements. There are a range of safety risks associated with their operations. The aging and high use of these areas results in areas of poor condition, and their older design is often less suitable for modern vehicles, which increase these safety risks.
- The poor condition and now sub-optimal design of individual facilities (buildings and pavements), can affect the efficient operations of the properties or increase operational risks. For example, working in older sub-optimal arrangements and temporary facilities while others are repaired, can reduce productivity (ie longer activity times), and add cost. Also, aged properties increase operational risks associated with major unexpected issues and failures arising, requiring emergency repairs and alternative temporary arrangements. Older facilities, particularly when compared to contemporary standards, can lead to poor staff morale increasing costs associated with managing staff turn-over.
- Sub-optimal field service depot arrangements can also affect customer supply reliability, adding to field crew response times to network faults.

Property portfolio historical expenditure

To reduce the effects of aging, we operate a maintenance regime at each property. This includes both preventative and reactive maintenance processes, along with other services (eg waste management). Larger repair work and refurbishment is capitalised, but our property capex also includes larger planned works, including:

- site acquisitions and establishments for new properties; and
- the major refurbishment, replacement and upgrade of facilities at existing properties.

The chart below shows the time series of our historical property expenditure (opex and capex) since 2008/09, as reported in our Category Analysis RINs (including our estimate for 2019/20).

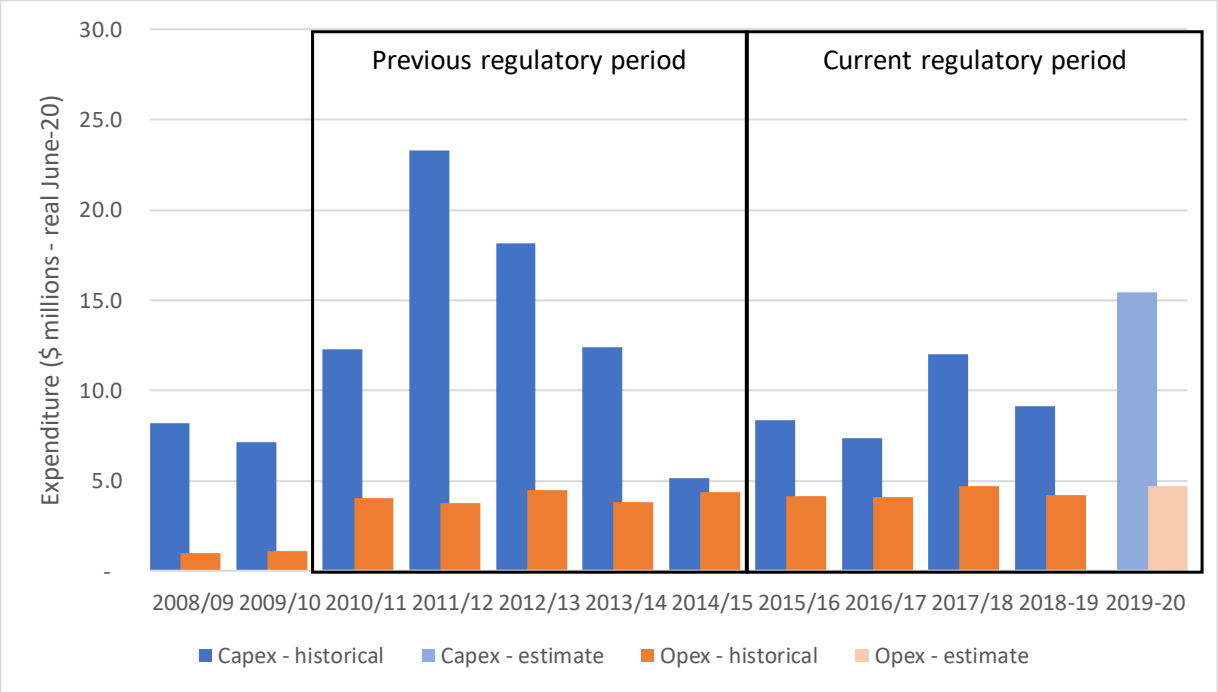


Figure 2 Historical property expenditure profile

This chart indicates that since 2010/11 opex has been rising on average by approximately 1.0% per annum. This trend is broadly indicative of an aging asset base, where we are still in the early "up-wards" phase of the replacement cycle.

The step in opex prior to this period is because of a change in our functional operating and business accounting models. Prior to 2010/11, property maintenance was managed at individual sites by the field service crews at that site, within their overall budget allowance. From 2010/11 property maintenance across all properties was managed by a dedicated group with its own budget allowance.

With regard to capex, there are some notable changes, with a spike in capex in the first four years of the previous regulatory period (2010/11 and 2013/14) and a more gradual rise in capex over the current regulatory period.

The significant increase in capex in the previous regulatory period is not due to a significant increase in major refurbishment and replacement activity in that period. Rather it is primarily due to various property acquisitions and establishments that we undertook that period. These include Station Place, Holden Hill, and Seaford, Streaky Bay, Nuriootpa, approximately $21 million in total.

We *did* undertake some refurbishments during that period of specific facilities at a number of properties, including Angle Park North (logistics office) and Angle Park Training Centre, and a number of depots, including Marleston South, St Marys, Mt Barker, Whyalla, Pt Augusta, Pt Pirie, Naracoorte, Murray Bridge, Kingscote[13].

In the current period, we are undertaking a number of significant projects, including:

- the major refurbishment of our head offices at Keswick ($7 million this period, with a further $6.3 million forecast for the next period)
- the construction of a new depot at Angaston, servicing the Barossa region ($6 million)
- the upgrade and refurbishment of facilities at Angle Park North, focusing on safety and compliance (pole construction facility and logistics warehouse and offices) ($4.7 million)

[13] A notable safety project related to asbestos removal at Angle Park and Marleston

- the upgrade and refurbishment of facilities at Marleston South, including the refurbishment of the air-conditioning and various buildings, and installation of a lift ($3.5 million)
- completion of the Streak Bay depot redevelopment ($1.1 million).

In addition, we have continued with the refurbishment of other aged facilities at other properties, including Port Pirie, Murray Bridge, Kadina. This has also included programs to replace inadequate security systems and replace aged pavements at various sites.

Key conclusions

We are in an early phase of the replacement cycle for our properties (ie the upward phase of the cycle) and expect refurbishment and replacement needs will increase in the future as the facilities at the properties continue to age.

This view is reasonable, given:

- the old establishment age of many of our properties
- the increasing trend in opex, which has been rising at approximately 1% per annum for the last 10 years
- the nature of the recent historical property capex being largely due to acquisitions and establishments, not significant refurbishments projects.

We understand that other NEM DNSPs have recently undertaken significant refurbishment and replacement works on their properties and so can now reduce capex. This is not the case for our properties. We will return to this matter when discussing our benchmarking of DNSP property expenditure in Section 6.

5. Development of our property capex forecast

In this section, we discuss the development of our property capex forecast, including:

- the methodology we have used to prepare the forecast; and
- an overview of the forecast, including an overview of the issues driving the need, the scope and cost of the proposed solutions.

The section separately discusses these matters for:

- major project sites
- minor project sites.

Evidence of the need

This section will summarise the main issues at each site that drive the 'need' for our property capex forecast. However, the purpose of this document is not to provide detailed evidence of the specific 'needs' at each site. Evidence of these issues and associated 'needs' are contained in:

- The appendices of our Property Services Capital Expenditure documents prepared by RLB, which was a supporting document to our original proposal[14]. RLB developed their forecast based upon their expert opinion of the needs at each site, and the appendices provide photographic evidence of the main issues at each site that were determined by RLB during its site inspections.
- The new business cases we have prepared for our revised proposal provide further photographic evidence of the main issues at the relevant major project sites. These are also supported by more comprehensive photographic evidence data packs.

In addition:

- The quantification of the need, which we have undertaken for the revised proposal and discuss below, provides a form of evidence of the materiality or scale of the need at the relevant major project sites.
- The overall need for our revised property capex forecast is evidenced through our top-down analysis, which is discussed in Section 6.

Major projects sites

We do not used a quantitative threshold or criteria to define the major projects sites. Rather, we have defined major projects sites where we are forecasting the needs for a major refurbishment or upgrade of a significant portion of the site, such that we would expect a significant improvement in the overall costs, risks and performance associated with that property.

The selection largely aligns with our original proposal and the AER draft decision. Although, as we will note below, we have removed some major project sites from our forecast (Seaford and Gumeracha), as we no longer consider it is likely we will undertake those planned works in the next regulatory period.

Forecasting methodology

As we noted in the introduction, we have improved our forecasting methodology for major project sites from the method that we used to prepare our original proposal.

Our revised methodology is summarised further below.

[14] Section 8.2, Attachment 2, Supporting document 5.31 to our original proposal

Reassessment and classification of the 'need'

The first stage of this improved methodology was a reassessment of the issues that constitute the needs, which in turn drive the scope items in the original forecast. The purpose of the reassessment was two-fold:

- to reconsider specific issues driving the original forecast scope items, and determine whether the issue was significant enough to likely warrant some remediation action over the next five year regulatory period; and
- classify issues and scope items into major and minor works items, where:
    - **major works items** represented the sets of scope items and associated issues that we considered were significant enough (in terms of the scale of the remediation works) to warrant formal cost-benefit analysis
    - **minor work items** were the many smaller disparate items, and associated issues, where we considered it would be infeasible to perform cost-benefit analysis[15].

The major work items were grouped into related matters that could be resolved via a single major project. For all sites studied, this involved grouping items into the following two facility types:

- pavement and associated external works; and
- buildings.

Separate cost-benefit models were prepared for these two facility types at each site.

The quantification of the 'need' – major work items

For each facility type associated with the major works items, we quantified the specific issues that were driving the need for some remediation action. This involved estimating the costs and risks, in dollars terms, associated with the issues. These costs and risk were classified as follows:

- Safety risk, which is the economic value associated with the risk of fatalities and injuries due to the current issues at these facilities, which were calculated by estimating the likelihood of such an event and the consequential cost of such an event[16].
- Operational costs, which are the additional costs to our operations (excluding direct maintenance and repair costs) attributed to these issues eg poorer productivity, due to longer activity times, or risks to our operations associated with possible future significant failures)[17].
- Supply reliability costs, which are the economic cost of the poorer supply reliability due to the effect of the issues (eg slower fault response times)[18].

These costs and risks formed important inputs to the cost-benefit analysis models for each facility.

Development of options – major work items

For each facility type associated with the major works items, we developed a range of options that could be assessed using cost-benefit analysis. These options typically ranged between:

- business-as-usual (ie continuation with the current reactive repair approach)

[15] Similar to the works in the minor projects site, this component consists of the piecemeal reactive repair and upgrade of the other facilities at this property, which is necessary to maintain the functionality of site as it ages and our operations and technology evolve.

[16] The consequence value was set to reflect similar values we have used for other models, including our CBRM models. The likelihood was estimated using site information relevant to the issues being considered.

[17] The costs were estimated using site information relevant to the issues being considered.

[18] These were estimated using information on reliability performance associated with feeders serviced by the relevant depot and VCR-type calculations.

- a modest staged remediation option, addressing compliance and safety issues where feasible, assuming this would allow for deferment of major works by 10 years
- major replacement or refurbishment, which was aimed at providing a long-term solution, removing the issues and associated costs and risk.

For each option, we estimated:

- the costs to implement the option (ie remediation option costs)[19]
- the change to current remediation costs (ie business-as-usual maintenance costs, including capitalised repair costs)
- the change to the costs and risks associated with the existing issues (ie quantification of reduction or avoidance).

These costs and assumptions formed important inputs to the cost-benefit analysis models for each facility.

Cost-benefit analysis – major work items

For each facility type associated with the major works items, we undertook formal cost-benefit of the options (as discussed above). This analysis used the business-as-usual option as the base line for comparing all other options against. The cost-benefit analysis was used to:

- determine which option provided the greatest net benefit (relative to the business-as-usual option)[20]
- test the sensitivity of the preferred option to key assumptions, including the discount rate, option remediation cost, timing of the option, the estimated economic value of the costs and risks associated with the issues

Assessment of the minor works items

The forecast for the minor works items was developed using a two-step process:

- a bottom-up build of the forecast was developed, based on the original forecast prepared by an independent quantity surveyor, RLB, for our original forecast – excluding items that were no longer considered needed through our reassessment of issues discussed above
- a top-down validation exercise was applied to consider any interrelationships and/or synergies and to confirm that the aggregate bottom-up forecast was in line with recent historical levels of capex for the facilities covered by the minor works items.

Selection of major project sites

The major works components of four sites have been assessed with our improved assessment methodology. These sites are:

- **Angle Park North**, which is a very large 80,000m^2 industrial metropolitan multifunctional site, operating as our primary metropolitan logistics hub (established in the early 1950s), the location of our sub-transmission line field services teams (for the whole state), and our sole stobie pole construction facility (established in 1960).

[19] Typically, business-as-usual remediation costs (ie ongoing maintenance and reactive repair) where calculated based on average historical levels and major project costs cost estimates prepared by an independent quantity surveyor, RLB (explained in our original proposal). Where this information was not available, we assumed costs based on typical costs for the assumed scope.

[20] For our analysis, the net benefit of any option is calculated as the present value of all the option costs minus the present value of all costs associated with the business-as-usual option, where costs include direct remediations costs and the economic costs due to the issues. Therefore, to have a positive net benefit, the present value of the costs of the option must be lower than the business-as-usual costs.

- **Marleston North**, which is a large 33,400m^2 industrial metropolitan multifunctional site (established in 1952), operating as the location of our zone substation commissioning, maintenance and field services teams (for the whole state), supporting metropolitan logistics facility, supporting distribution testing and field services facilities (providing services associated with our Adelaide CBD customers).
- **St Marys**, which is a 16,200m^2 metropolitan depot (established in 1986) providing various services for our customers in the southern Metropolitan area; and
- **Clare**, which is a 7,200m^2 regional depot (established in 1967) providing various services for our customers in the Clare valley region[21].

The facilities at each of these sites that we have separately assessed are summarised in the table below.

Table 2 Summary of major project sites and facilities assessed via our enhanced methodology

	Facilities being assessed (major works components)	
Property	**Pavement**	**Buildings**
Angle Park North	Logistics pavement (and associated external works) – 24,000m^2	Logistics/TX building The building currently used as a logistics store and the facilities for the transmission line field service (old redundant logistics administration office building)
Marleston North		Zone substation (ZSS) group buildings 4 buildings used by the various zone substation asset management groups: • the transformer workshop; • the oil test lab; • the substation workshop; and • the substation store.
St Marys	Pavement (and associated external works) – 13,900m^2	
Clare	Pavement (and associated external works) - 2027m^2	Main staff buildings 3 buildings: • the main office and administration building • the engineering office • the workshop.

It is important to note that we have excluded two major project sites from our analysis:

- **Keswick** – we have not assessed Keswick using cost-benefit analysis because a major portion of the works is already underway in this regulatory period, and the overall refurbishment will continue

[21] Clare has a lower capex forecast than some other sites. But it is one of the most significant regional depots (by remediation cost), where the remediation costs represent a significant increased from historical levels at that site.

into the next period. It is too difficult to isolate the benefits from the remaining minor work and quantify the effects if ongoing works were delayed significantly.

- **Seaford** – we have removed the establishment of the new Seaford depot from our forecast for the next regulatory period. Following further review and consideration, we consider there is insufficient certainty on the required demand growth in the next regulatory period, which was a major driver of the need for the new depot. Therefore, we have deferred this development at this point, and instead will most likely do further minor remediation works at the Morphett Vale depot to extend the life of that depot, and may reconsider establishing Seaford in the 2025-2030 regulatory period.
- **Gumeracha** – we have removed the refurbishment of the regional Gumeracha depot from our forecast for the next regulatory period. Following further review, we consider there is some uncertainty in the continuing role and function of the Gumeracha depot following the completion of the new Angaston depot, which can service this region also. Therefore, we have deferred this refurbishment work at this time, and will reconsider this project during the next regulatory period.

In addition to the removal of the major projects at Seaford and Gumeracha, some items at Angle Park North, Marleston North and St Marys have been removed that we either considered would be addressed in the current period or were unlikely to be needed in the next period. We have made adjustments to the underlying forecasts to remove these items. These items were associated with the facilities that were classified are minor work items in our analysis.

The reasonableness of the four overall major projects site capex, plus Keswick and other minor works at these sites, which were not assessed through the CBA modelling, has been validated through our top-down analysis of the overall property capex, which is covered in Section 6.

Summary of site issues and needs – major works items

The table below summarises the main issues with facilities at each property. The issues are separated into:

- **Major issues**, which are those issues that we consider are most significant in driving the need for a major project, and so are the issues we have quantified for our cost-benefit analysis; and
- **Other issues**, which are other significant issues with the facility that do not drive a need for a major project, but can been addressed opportunistically through a major project.

Table 3 Summary of issues associated with the major works items

Site	Facility	Major issues	Other issues
Angle Park North	Logistics Pavement	• Poor condition of the pavement • Sub-optimal layout	• Inadequate security systems (ie beams and cameras) • Lack of undercover EWP parking for these high value vehicles • Lack of wash bays • Poor condition of storage shed and other external features
	Logistics/TX building	• Poor condition of the building, particularly affecting its concrete floor, walls, gutters and downpipes • Aged, inadequate and poor state of the facilities for sub-transmission team • Sub-optimal office arrangements for sub-transmission team, due to lack of formal office facilities in building • Limitations in store layout, due to it being a repurposed office	• Aged air conditioning system • Inadequate lighting • Inefficient building design, compared to modern structures • Minor non-compliances to modern standard of the fire system and electrical services
Marleston North	ZSS group buildings	Range of issues across the buildings, which together represent a major issue:	

Site	Facility	Major issues	Other issues
		• Aged air conditioning and heating systems • Poor condition flooring, walls and ceilings • Aged office fit-out • Aged toilet facilities	
St Marys	Pavement	• Poor condition of the pavement • Sub-optimal layout and traffic flow • Height clearance limitation	• Inadequate security systems (ie beams and cameras) • Lack of undercover EWP parking for these high value vehicles • Lack of wash bays
Clare	Pavement	• Poor condition of the pavement • Sub-optimal layout and traffic flow • Height clearance limitation • Sub-optimal loading and unloading arrangements • Limited parking on-site, resulting in parking off-site and associated council concerns	• Inadequate security systems (ie beams and cameras) • Lack of undercover EWP parking for these high value vehicles • Lack of wash bays • Poor condition of truck shelter
	Main staff buildings	• Main office building in poor condition due to its age and has evidence of significant termite damage • Poor condition of non-structural elements of other buildings, including floor and flooring, wall cladding • Aged air conditioning and inadequate lighting	

The table indicates that the major issues with the pavements are:

- their poor condition, due to their age and the increasing levels of modern heavy vehicle use; and
- existing layout and arrangements, which are suboptimal for modern vehicles and the current use.

As noted in the previous section, the pavement areas are used by heavy transport vehicles, forklifts and pedestrian movements associated with loading and unloading equipment. The issues with the pavements present safety risks associated with the vehicle and pedestrian movements on the pavements.

However, the issues also affect operational costs (eg longer times to undertake tasks, operational risks associated with unexpected major failures of the pavement), and customer supply reliability associated with the activities of our field service depots.

Similarly, the major issue with the building facilities is the poor condition of the building structure or the non-structural elements of the building, including fixtures, fitting and services. Similar to the pavement, this is primarily due to their age and use.

These issues result in some safety risk in these buildings. However, they tend to have a greater effect on operating costs. As with the pavements, these issues can increase operating costs which are a result of longer times to undertake tasks and operational risks associated with unexpected major failures of building elements. However, a significant operating risk is due to the resulting low morale of staff working in older aged buildings, where the arrangements are significantly below modern standards. If this occurs for too long a period, it can result in higher staff turn-over rates, increasing our costs to hire and train new staff.

Importantly, for the Angle Park North building, which is used by the sub-transmission line field service crew, this building has inadequate office facilities for this team. This requires them to walk across the site to the main logistics offices for most office-based tasks (eg formal meetings, data system entries). Angle Park North is one of our busiest industrial sites, with multiple heavy good vehicles delivering equipment to site 6-days a week. This requires the field crew to cross this traffic flow, which creates significant safety risks.

Summary of the quantification of issues – major works items

We undertake preventative and reactive maintenance works to minimise the effects of poor condition. We also impose controls to reduce safety risk. However, these issues impose material costs and risk above what would be expected from a modern equivalent facility.

As noted above, we have estimated the value (in dollar terms) associated with the main issues with facilities at each property, in terms of their incremental effect on:

- operating costs (ie our costs, which could be expensed or capitalised)
- safety costs (ie the economic value of the safety risk)
- supply reliability costs (ie the economic value of the effect on supply reliability).

The table below summarises the value of these costs[22] (note, operating costs in this table do not include direct remediation costs, such as the preventative maintenance and reactive repair of the issues).

Table 4 Summary of cost and risk due to the issues at each site and facility – major work items

		Issue costs and risks ($'000)		
Site	Facility	Operational	Safety	Reliability
Angle Park North	Logistics Pavement	56.5	98.8	-
	Logistics/TX building	105.0	134.4	-
Marleston North	ZSS group buildings	118.1	12.0	15.7
St Marys	Pavement	88.5	6.3	78.6
Clare	Pavement	20.9	24.4	16.8
	Main staff building	34.9	6.0	12.0
Total		423.9	282.0	123.2

The key points to note from this table are as follows:

- Operational costs and risks are the most significant component of the cost, representing 51% of the total cost. This cost component is particularly significant for the building facilities at Marleston North and Clare.
- The safety risk (ie the economic value associated with the risk of fatalities and injuries due to the current issues at these facilities) is also a significant component (34%) of the costs.
- A smaller portion of the total cost, 15%, is due to poorer supply reliability due to the issues.

Further details of the issues and their quantification, including the basis of underlying assumptions, are provided in the site business cases and associated cost-benefit analysis models.

Comment on the safety risk

During discussion with the AER, they have questioned the relationship between the safety risk and the relationship to insurance and associated costs. In this regard, the AER has questioned whether our safety risk estimates can be reasonable as they would suggest a very high insurance value.

[22] These costs can be considered to reflect the current expected annual costs due to the issues.

We believe that the safety risk we have estimated is appropriate for cost-benefit analysis. Importantly, we would expect this safety risk to be considerably higher than an insurance risk, for the following reasons:

- Firstly, from a corporate risk management point of view, the risks associated with specific site facilities is classified as low to medium risk in our corporate risk scale. Therefore, they are not specific risks being monitored and controlled through the corporate risk management protocols. For example, the assumed likelihood of fatalities associated with any of the studied facilities are very low ie typically much longer than 1 in 100 year event.
- Secondly, this risk should in no way be interpreted as any recognition of some imprudent or negligent management by us of the pavement and its degradation up to this point or in the future.
- Thirdly, the assumed consequences are based on public information on the cost to the economy of deaths and injuries (ie the value of statistical life[23]). These values are prepared for cost-benefit analysis of the type we have applied. We also apply a 2x disproportional factor to these values, which aligns with how we understand these values should be applied when confirming decision are in accordance with our safety legislation. Importantly, the economic value (such as the value of statistical life) is known to be well above typical insurance values.

Summary of options considered and remediation costs

The table below summarises the range of remediation options we have developed for each facility, including continuing with a business-as-usual approach. This table also provides the capital cost associated with each option over the next three regulatory periods.

We have provided the remediation costs over three regulatory periods to show the implications of the business-as-usual and the deferments options on the longer term capital costs. For the business-as-usual option, we have assumed the reactive repair needs and costs will continue beyond that period.

The option remediation costs have been calculated on the following basis:

- Business-as-usual reactive repair costs are based on the average of recent historical costs in the current period[24]
- The major refurbishment or replacement options, use the estimate prepared by RLB provided in original proposal
- Staged options assume costs, based on our estimate of the likely costs to undertake the piecemeal portion of the project
- For some options (eg establishing a new dedicate site for our sub-transmission line field crew), we use a high-level conceptual estimate based on available cost information.

The business-as-usual option for Angle Park North Logistics store and transmission line field services building is assumed to be zero as historically we have undertaken no significant repair works on this building as it has been planned for demolition and rebuilding for some time. This assumption favours the business-as-usual option in our analysis, as it is unrealistic that we could continue with this approach in the medium to long term if we continued using this building; and therefore, the remediation costs for this option would most likely be significantly higher than suggested by this table.

[23] Best Practice Regulation Guidance Note Value of statistical life, December 2014, Department of the Prime Minister and Cabinet

[24] Note, our cost-benefit models include capex and opex remediation costs calculated in this way. However, the table only shows the capitalised reactive repair costs.

We did not develop a piecemeal option for the logistics pavement, as we considered that the current approach (ie business-as-usual option) is essentially a rolling piecemeal remediation approach to managing the issues with this pavement.

Further details of the scope of the option and cost basis are provided in the site business cases and associated cost-benefit analysis models.

Comments on other pavement options

During discussion with stakeholders, including the AER, they have raised other options as possible lower cost solutions associated with our pavement needs, particularly at Angle Park North of which the replacement of the pavement represents one of the highest cost items in our forecast.

In this regard, stakeholders have raised the possibility of using alternative forklift more suitable for uneven surfaces or lower cost solutions to repair areas of poor condition bitumen or concrete (eg patching bitumen or resurfacing/releveling bitumen or concrete areas).

With regard to alternative forklifts, we do not consider this is a credible option. We already use forklift types designed for outdoor logistics use, and in many circumstances, they can deal with the types of uneven surfaces that will arise as pavements degrade. Forklift selection is predominantly based on the type of load it needs to carry safety and efficiently, given the arrangements of the facility. And far less on being able to drive on degraded pavement. We do not believe there are credible alternative options that would provide significant improvement and would still be suitable for our logistics operations. Importantly, switching to an "all-terrain" tyre type would also contribute to significant further accelerated degradation as these tyres tend to grip into the surface when turning and if used on already degraded areas would exacerbate the problem further, making pedestrian movements more hazardous. Additionally, this would require us to make significant investment, that would need to be justified by allowing the pavement to degrade significantly (eg new all-terrain forklifts are typically between $10-$70k depending on size).

We do not believe this is a credible alternative: it would likely cause significant staff concerns that we would need to manage, introduce other safety risks to our operations, and more than likely, only provide some temporary deferment of the need to undertake a more significant replacement project.

With regard to the lower cost repair solutions, we fully acknowledge these are reasonable solutions to raise. But in many respects, these are the solutions we currently apply to manage the degradation of our pavements (and internal concrete floors). We have allowed for these types of repair work in our forecast where we consider this is still a credible option[25]. Moreover, our business-as-usual options allow for these types of repair as an option for consideration in our cost-benefit analysis.

It is important to stress that these options are effectively repair options. That is, the pavement areas need to degrade (driving the cost and risks noted above), before these solutions are worthwhile applying. Furthermore, they are not usually long-term solutions. As such, the usual life cycle for the pavement area is an initial period of little or no repair work, then a period of escalation works of this type, and then finally the need for a more significant replacement[26]. Our view is that we have reached this final stage, and our cost-benefit analysis is aimed at demonstrating this.

Importantly, both Marleston North and Angle Park are built on contaminated soil material imported from various SA Power Stations in the 1950' – 60's, predominantly slag and fly ash. This material and subsidence of the subgrade underneath the bitumen contributes to its ongoing cracking issues. Applying material over the top only provides a very short-term fix, as a bitumen wear course is only as good as the sub-grade it is built upon. Our staged replacement of these pavements includes the cost of removal, treatment and disposal of this contaminated material under our EPA obligations and replacement of the sub-grade to ensure an appropriate 20-30 year lifespan of the new pavement.

[25] For example, we have allowed for some low-cost repair and releveling our logistics warehouse concrete floor.

[26] Note, this life cycle is no different to other paved areas, including public roads and pavements.

Table 5 Major project options and option capital cost estimates

		Option remediation capital cost ($millions by regulatory period)		
Site - Facility	Option description	2020/21 - 2024/25	2025/26 - 2029/30	2030/31 - 2034/35[a]
Angle Park North Logistics pavement	Business as usual - continue with reactive repair strategy	0.83	0.87	0.92
	Staged replacement over 5-year period	4.28	4.03	
	Replacement over next period	7.33		
Angle Park North Logistics store and transmission line field services building	Business as usual - continue with reactive repair strategy			
	piecemeal remediation	0.10		3.57
	Discontinue use of building	0.10		
	Rebuild	3.57		
	Move transmission field services to new dedicate site and discontinue existing storage building	4.00		
	Move transmission field services to new dedicate site and rebuild hard-stand storage facility at Angle Park North	4.25		
Marleston North Zone substation groups buildings	Business as usual - continue with reactive repair strategy	0.28	0.30	0.31
	piecemeal remediation	0.67	0.18	1.82
	major refurbishment and upgrade	2.19	0.06	0.06
St Marys Pavement	Business as usual - continue with reactive repair strategy	0.17	0.18	0.19
	piecemeal remediation	0.48	0.14	3.36
	Pavement replacement	3.59	0.02	0.02
Clare Main staff buildings	Business as usual - continue with reactive repair strategy			
	piecemeal remediation	0.10		0.84
	major refurbishment and upgrade over next period	0.93		
Clare Pavement	Business as usual - continue with reactive repair strategy	0.03	0.03	0.03
	piecemeal remediation	0.08	0.02	0.57
	major refurbishment and upgrade	0.62	0.00	0.00

a - For options, such as “business as usual”, reactive repair costs will continue beyond this period

Summary of cost-benefit analysis

Table 6 below summarises the results of our cost-benefit analysis of each option for each facility. For each option studied, this table shows the net-benefit of the option (relative to the business-as-usual option[27]), and the option remediation costs (capex and opex) and costs due to the issues[28]. This table also shows the preferred option, which is the option that provided the greatest positive net benefit.

This table indicated that for all facilities studied, there is a net positive benefit in changing from the business-as-usual approach to managing the current issues. Moreover, the option that maximises this benefit is a major refurbishment or replacement of the facilities, providing a long-term removal of the issues.

Our analysis indicates that the total net-benefit of implementing these preferred options is valued at $10.6 million (in present value terms over a 40-year period).

Table 6 Summary of cost-benefit analysis results for all options studied

[27] Option net benefit = (remediations costs plus issue costs of that option) minus (remediation costs plus issue costs of the business-as-usual option) – where all costs are the present value of costs over the study period.

[28] All costs shown on the table represent present value costs, calculated over a study 40-year period using a discount rate of 2.63%.

Site - Facility	Option description	Present value ($ million)[a]			Maximum net benefit option
		Option costs	Issue costs and risks	Net benefit	
Angle Park North - Logistics pavement	Business as usual - continue with reactive repair strategy	5.06	3.81		
	Staged replacement over 5-year period	7.67	0.29	0.91	
	Replacement over next period	**7.20**		**1.68**	**Yes**
Angle Park North - Logistics store and transmission line field services building	Business as usual - continue with reactive repair strategy	0.61	5.88		
	piecemeal remediation	3.41	1.91	1.18	
	Discontinue use of building	4.03	2.96	-0.49	
	Rebuild	**4.17**		**2.32**	**Yes**
	Move transmission field services to new dedicate site and discontinue existing storage building	8.81	-0.08	-2.23	
	Move transmission field services to new dedicate site and rebuild hard-stand storage facility at Angle Park North	5.12	-0.20	1.57	
Marleston North - Zone substation groups buildings	Business as usual - continue with reactive repair strategy	1.92	3.58		
	piecemeal remediation	2.38	0.73	2.39	
	major refurbishment and upgrade	**2.40**		**3.10**	**Yes**
St Marys - Pavement	Business as usual - continue with reactive repair strategy	1.11	4.26		
	piecemeal remediation	3.14	1.15	1.09	
	Pavement replacement	**3.58**		**1.79**	**Yes**
Clare - Main staff buildings	Business as usual - continue with reactive repair strategy	0.22	1.30		
	piecemeal remediation	0.82	0.34	0.36	
	major refurbishment and upgrade over next period	**0.96**		**0.56**	**Yes**
Clare - Pavement	Business as usual - continue with reactive repair strategy	0.21	1.53		
	piecemeal remediation	0.54	0.43	0.76	
	major refurbishment and upgrade	**0.62**		**1.12**	**Yes**
Total net benefit (relative to business-as-usual)				**10.57**	

a – discounting assumes our proposed pre-tax real WACC of 2.63% analyzed over a 40-year study period

Table 7 below shows the make-up of the net-benefit of the preferred options in terms of changes to operating costs, safety risk economic costs, and supply reliability economic costs, where a positive number represent a benefit in terms of a reduction in costs relative to the business-as-usual option. For the values

shown on this table, the operating costs are cost changes seen by our business, and include both the remediation costs (capex and opex) and the operating costs due to the issues (as summarised in Table 4[29]).

Table 7 Summary of the net benefit make-up of the preferred options

Site - Facility	Option description	Net benefit - Present value ($'000)[a]			
		Operating	Safety	Supply reliability	Total
Angle Park North - Logistics pavement	Replacement over next period	-748	2,427	0	1,679
Angle Park North - Logistics store and transmission line field services building	Rebuild	-977	3,301	0	2,324
Marleston North - Zone substation groups buildings	major refurbishment and upgrade	2,415	295	386	3,096
St Marys - Pavement	Pavement replacement	-292	156	1,931	1,795
Clare - Pavement	major refurbishment and upgrade	106	600	412	1,118
Clare - Main staff buildings	major refurbishment and upgrade over next period	118	147	296	561
Total		**621**	**6,926**	**3,025**	**10,572**

a – discounting assumes our proposed pre-tax real WACC of 2.63% over 40-year analysis period

The key points to note from the make-up of the net-benefit shown in Table 7 are as follows:

- The main factor driving the overall benefit is the avoided safety risks at the facilities. This represents the greatest component of the net benefit for both facilities at Angle Park North and the pavement at Clare.
- There is also a significant benefit occurring through improved customer supply reliability at Marleston North, Clare and most significantly St Marys. This is occurring through slightly improved responses time that are expected to occur due to the refurbishments and replacements and the avoidance of supply restoration risks that could occur if there was major disruption at these properties.
- Our analysis suggests that the overall long-term cost of our operations associated with these sites (capex and opex) will reduce by a modest amount – compared to continuing with the business-as-usual approach. However, this result is very much driven by a significant reduction associated with our operations at Marleston North, with smaller reductions at Clare. These costs will increase over the longer term at Angle Park North and St Marys.
- However, our analysis of increasing operating costs (capex and opex) is likely to be overstating the likely long-term cost increase. We have assumed that the business-as-usual approach can be extended over the 40-year analysis period, without any major refurbishment or replacement occurring. However, given the age and state of these facilities, this assumption is very unlikely. If we assumed that a major refurbishment or replacement will be required for each project within 10 to 20 years then it is less likely that operating costs associated with the preferred option will be higher than the business-as-usual option, in the long term, and the net benefit of our preferred option will also be significantly higher.

We have also found the preferred options to be insensitive to a reasonable range of the key assumptions, including the discount rate, capital cost of the preferred option and our quantification of the costs and risks

[29] Note, the issue costs used in Table 7 are present value costs calculated over a 40-year period, whereas the issues costs shown in Table 4 are the current expected annual costs.

due to the issues. Similarly, for all preferred options, there would not be a greater net benefit in deferring the project, as the benefit of the avoided annual cost of the issues is significantly greater than the benefit achieved by deferring the capital cost of the preferred option by a year.

Summary of major projects forecast

In total, we have forecast $26.9 million for the five properties that we have classified as major project sites (excluding Seaford and Gumeracha, which we have removed from our revised forecast for the reasons discussed above).

Of this forecast, approximately 68% has been derived through our new cost-benefit analysis and 9% covers the other minor works at the major project sites, which we validated through historical trending analysis of the equivalent historical costs at the relevant sites. The remaining 23% relates to the Keswick forecast, which is the same as in our original proposal. We have not assessed this property using the cost-benefit analysis for the reasons discussed above.

The table below summarises our forecast for each property. This table also indicates the analysis method we have used to validate the forecast for the facilities at each property, the major direct scope items[30] and their cost estimate (including on costs).

Table 8 Summary of the major projects forecast

Property	Analysis method	Facility	Scope	Scope cost (inc. on costs) ($'000)
ANGLE PARK - 500 GRAND JUNCTION ROAD	CBA model	Logistics store and TX building	Replace demolished building with new storage building of same size	3,382
			Other smaller work items	192
		Pavement	Allowance to dispose of intermediate waste fill where replacing with concrete pavements - assume 300mm deep	1,454
			Replace pavement with concrete hardstand	5,590
			Other smaller work items	291
	Historical trend	Control Centre	Other smaller work items	8
		Logistics other	Other smaller work items	418
		Pole construction facility	Other smaller work items	195
ANGLE PARK - 500 GRAND JUNCTION ROAD Total				**11,529**
CLARE - 14 LENNON STREET	CBA model	Buildings	Allowance for office building complete including substructure. framing, cladding, internal fit-out, services, amenities etc.	606
			Other smaller work items	320
		Pavement	Other smaller work items	619
CLARE - 14 LENNON STREET Total				**1,545**
MARLESTON NORTH - 212 RICHMOND ROAD	CBA model	Buildings	Allowance for office fitout complete including floor finishes, ceilings, walls, doors, services, etc.	408
			Other smaller work items	1,726
	Historical trend	Buildings	Other smaller work items	733
		Pavement	Other smaller work items	623
MARLESTON NORTH - 212 RICHMOND ROAD Total				**3,491**
ST MARYS - 33 AYLIFFES ROAD	CBA model	Pavement	Allowance to dispose of intermediate waste fill where replacing with asphalt pavements - assume 300mm deep	573

[30] For this table, major scope items are defined as those with a cost (including on costs) greater than $350,000. All other direct scope items for that facility are aggregated in the table and defined in the "Other smaller work items".

Property	Analysis method	Facility	Scope	Scope cost (inc. on costs) ($'000)
			Full depth pavement including asphalt wearing course	1,248
			Replace pavement with concrete hardstand	944
			Other smaller work items	813
	Historical trend	Buildings	Other smaller work items	283
		Sheds	Replace storage shed	370
			Other smaller work items	279
			Sheds (30% adjustment)	-454
ST MARYS - 33 AYLIFFES ROAD Total				**4,055**
KESWICK - 1 ANZAC HIGHWAY	Other	OFFICE BUILDING	Allowance for new fitout complete with internal walls, workstations, floor finishes, ceilings, services, FFE etc	9,831
			Allowance for toilet refurbishment complete including floor and wall finishes, fixtures, partitions, services etc. (Male & Female for Levels 2-6)	1,132
			Allowance to re-caulk glazed facade panels	905
			Replace metal clad facade panels	928
			Roof replacement	362
			Other smaller work items	1,685
		UNDERCROFT & DECK CARPARK	Other smaller work items	533
		Adjustment (original proposal)	Adjustment for works completed this period	-9,100
KESWICK - 1 ANZAC HIGHWAY Total				**6,276**
Grand Total				**26,896**

Minor projects sites

The minor projects sites represent the remainder of our properties where we are forecasting the needs for material levels of refurbishment and upgrade. This component of our forecast consists of the continued piecemeal reactive repair and upgrade of these properties, which is necessary to maintain the functionality of each property as it ages and our operations and technology evolve.

Forecasting methodology

We have used a largely bottom-up method to produce the capex forecast for the minor project sites, based on a review of the current significant issues at each site, and then scoping and costing of the likely works necessary to address issues.

The methodology has relied upon the site reviews and cost estimates developed by RLB and discussed in our original proposal. However, we have applied further analysis of the needs and solutions in light of our new top-down validation exercise, discussed in the next section.

In appreciating our forecast and the significance of individual underlying items in this forecast, we consider it very important to stress that the bottom-up process is only aimed at providing an ***indicative*** view of our needs over the next period and possible work items and costs.

We fully expect that during the next period new issues will arise, some existing issues will worsen, and alternative solutions and costs to address specific needs will be found. What we actually do will depend on the issues at that time and the costs and risks associated with these issues that we determine at that time, and the implications on future needs.

An example of this type of emerging issue has occurred at Marleston North (see the Marleston North business case), where a major issue with oil bunding has been recently found. This is not allowed for in our forecast, but it is very possible that this could become a higher priority need in the next regulatory period as we investigate this matter further[31].

Our forecasting methodology has been applied primarily to provide some support to the overall forecast cost of the minor project component. But the forecast's validity has to be viewed more in the context of the top-down validation of our overall forecast, which we discuss in the next section. Rather than the detailed justification for individual line items.

Alternatively, we could have simply used historical trending or other top-down method to develop the forecast, as we understand some other DNSPs have applied. However, for all the limitation in this bottom-up methodology, the review process provides a helpful formal process to identify, assemble and review issues across our sites, and provides a helpful indication of how needs could be changing (up or down) from period to period. Additionally, the bottom-up process also provides us with a useful indicative guide to potential work levels and work types for our own planning purposes.

Nonetheless, because it is only an indicative bottom-up approach based on a large set of current minor issues, caution is required in focusing too heavily on specific items included in this forecast and their justification. The reasonableness of specific items is more secondary than the reasonableness of the overall forecast amount. We discuss the reasonableness of the overall forecast in Section 6.

Summary of forecast

In total, we have forecast $23.8 million for the properties that we have classified as minor project sites. The table below summarises the major direct scope items[32] included in this forecast, including the total costs (including on-costs) and the volume of those scope items.

Table 9 Summary of the minor projects forecast – forecast scope items

Scope item	Scope cost ($'000)	Number scope items
Full depth pavement including asphalt wearing course	5,154	14
Allowance for office fitout complete including floor finishes, ceilings, walls, doors, services, etc.	2,020	7
Allowance for Wash Bay	1,961	19
Allowance for undercover EWP parking	1,540	18
Replace pavement with concrete hardstand	1,102	4
Allowance for Security Services (beams and cameras)	921	18
Allowance for workshop/store complete building including substructure. framing, cladding, internal fitout, services, etc.	841	2
Allowance for toilet refurbishment complete including floor and wall finishes, fixtures, partitions, services etc.	743	5
Replace street facing chainmesh fencing with security palisade fencing	705	9
Allowance for office building complete including substructure. framing, cladding, internal fit-out, services, amenities etc.	655	1
Allowance to dispose of intermediate waste fill where replacing with asphalt pavements - assume 300mm deep	572	2
Replace existing metal deck roof sheeting including insulation	554	8
Replace side and rear fencing with Colorbond fencing including razor wire	542	8
Replacement of Evaporative A/C units and associated sheet metal ducting	332	2

[31] Although this has arisen at a major project site, there is no reason similar matters will not arise in the minor projects sites.

[32] For this table, major scope items are defined as those with an aggregate cost (including on costs) greater than $300,000. All other direct scope items in the minor projects forecast are aggregated in the table and defined in the "Other smaller work items".

Scope item	Scope cost ($'000)	Number scope items
Replace sheet metal wall cladding including insulation	312	7
Other smaller work items	5,814	
Total minor projects	**23,770**	

The table above shows that there are a number of scope items where we are forecasting the need to undertake these works at a number of properties. Generally, the need for these items are similar to the equivalent items that are included in our major projects and discussed in the associated business cases.

The table below, summarises the general issues that the highest value scope items above address, including an explanation of the costs and risks due to these issues.

Table 10 Summary of the minor projects forecast – forecast scope items

Scope item	Issues, risks and costs
Full depth pavement including asphalt wearing course	These needs are due to similar issues driving the pavement replacements in the major projects, primarily: • areas of poor condition, due to the pavements age and nature of modern vehicles using the pavement areas • other issues associated with sub-optimal layout and height clearances. These issues primarily cause safety risks associated with the vehicle and pedestrian movements on the pavements. However, the issues together also affect operational costs, and can affect supply reliability associated with our field service depots.
Allowance for office fit out including floor finishes, ceilings, walls, doors, services, etc.	We have a number of sites where the existing office fit outs are aged, in poor condition, and do not meet contemporary office fit-out standards, including our own. Aged and below standard office arrangements can affect operational costs and risk, including poor site staff morale – particularly, when many of our corporate offices have undergone or are undergoing major refurbishments.
Allowance for Wash Bay	Most of our sites do not have wash bays. The need for wash bays within sites is primarily two-fold: • We have some requirements to wash down vehicles when moving between areas ie to avoid transfer of environmental hazards. • We have many high-value field service vehicles on most sites. Regular cleaning is essential to maintain the vehicles and ensure they operate reliably, and to achieve expected lives. Presently, we must use commercial washing facilities located outside of our sites, which affects operational costs and increases operational risks.
Allowance for undercover EWP parking	Because of the old age of most of our depots, they do not have undercover parking suitable for our Elevated Work Platform vehicles. These are typically some of the highest value field

Scope item	Issues, risks and costs
	service vehicles we house on site, with replacement values up to $500,000. Undercover parking protects the vehicles from our harsh environments (eg rain and extreme temperatures), and therefore, aids the maintenance of these vehicles and ensuring we achieve expected lives.
Replace pavement with concrete hardstand	This need is related to the need to replace pavements above. For a small number of sites (Elizabeth, Marleston South, Barmera, and Mt Barker), there is also a need to construct concrete hardstands. These pavement structures are more hardwearing than bitumen/asphalt paved areas, and are far more suitable for storing heavy equipment and the use of the types of vehicles necessary for loading and unloading this equipment (eg forklift vehicles). Constructing concrete hardstands, particularly when undertaking major pavement upgrades, improves pavement life-cycle costs, reduces safety risks and operational cost and risks.
Allowance for Security Services (beams and cameras)	We have a large number of sites where the existing security systems are inadequate, particularly considering the increasing availability and cost of modern systems. This is most notable with security cameras and beams. These deficiencies impose operational risk, associated with unauthorized access and theft on our site, which all hold high-value equipment. In addition, most of our depots and industrial sites are a range of safety hazards, and unauthorized access imposes safety risks.
Allowance for workshop/store complete building including substructure. framing, cladding, internal fitout, services, etc.	We have a small number of sites (Bordertown and Yorktown), where existing workshop and storage buildings are aged and in very poor condition. Furthermore, the construction methods, materials and services of these buildings are well below modern standards. Aged buildings of this type and use impose a range of safety risks associated with their operations. They also impose operational risks, particularly if a major safety issue arises resulting in their temporary total or partial shut-down.

The table below shows a further breakdown of the minor projects forecast, indicating the properties our bottom-up method has found a need and the forecast at each of these properties. This table indicates that a significant portion (63% by cost and 68% by number) of the minor projects forecasts is associated with the regional properties, whereas the large majority of our major projects forecast is associated with our metropolitan properties.

This split is more related to the overall higher value of our major metropolitan sites (eg Angle Park North, Marleston North, Keswick) resulting in them being more appropriate for formal cost-benefit analysis, rather than the issues at the regional sites being more minor in nature (in a relative sense).

Table 11 Summary of the minor projects forecast – by property

Property location	Property	Cost (inc. on cost) ($'000)
Metropolitan	ELIZABETH - PEWSEY AVENUE	2,471
	MARLESTON SOUTH - 41-55 BARNES AVENUE	1,783
	ANGLE PARK - 622 SOUTH ROAD	1,639
	VICTOR HARBOR - 45 MENTONE ROAD	1,520
	ANGLE PARK - 480 GRAND JUNCTION ROAD	1,054
	HINDMARSH - 1 STATION PLACE	420
Metropolitan Total		**8,887**
Regional	YORKETOWN - WAROOKA ROAD	1,926
	PT AUGUSTA - PT 12 CHAPEL STREET	1,902
	BORDERTOWN - POWER HOUSE ROAD	1,439
	PT LINCOLN - BEL AIRE DRIVE	1,250
	MT BARKER - 31 ALEXANDRINA ROAD	1,219
	MT GAMBIER - 18 AVEY ROAD	1,196
	NARACOORTE - 99 CEDAR AVENUE	1,008
	WHYALLA - 61-65 MCRITCHIE CRESCENT	978
	MURRAY BRIDGE - 16-18 WILLOW AVENUE	941
	CEDUNA - GOODES ROAD	922
	WUDINNA - LEFEVRE STREET	836
	BARMERA - 59-61 TONKIN AVENUE	724
	CLEVE - DEPOT STREET	542
Regional Total		**14,883**
Total Minor project sites		**23,770**

Key changes to original proposal forecast

Our revised total property capex forecast is $50.7 million. This is $10.8 million (or 18%) lower than the forecast in our original regulatory proposal, $61.5 million.

The key changes to the forecast are as follows:

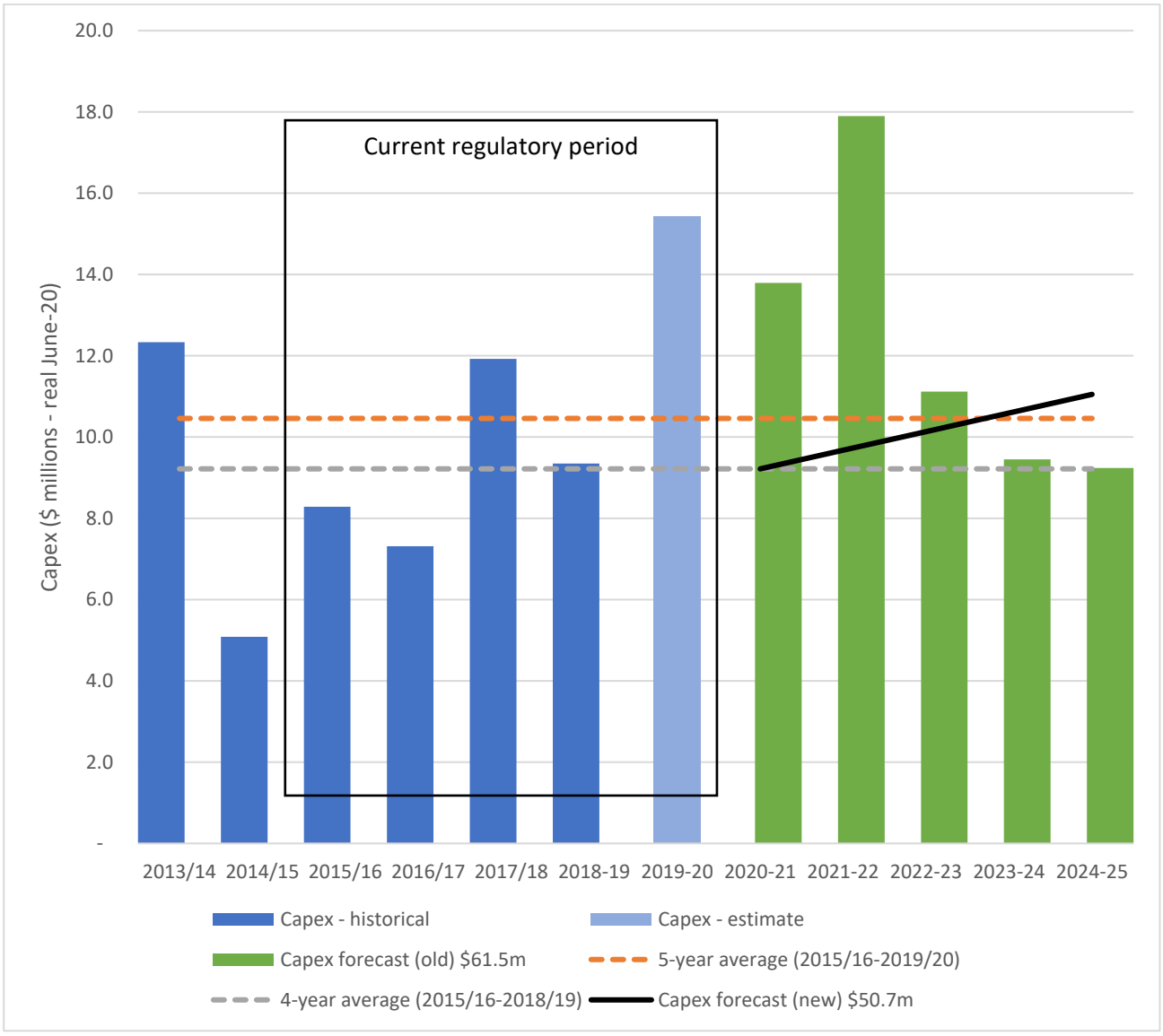
- We have removed the works associated with establishing the Seaford depot ($7.0 million, including contingency)
- We have removed the works associated with refurbishing the Gumeracha regional depot ($2.4 million, including contingency)
- We have removed various works, which were included in the original forecast for Angle Park North ($2.3 million, including contingency)
- We have removed various works, which were included in the original forecast for Marleston North ($0.5 million, including contingency)
- We have reduced the forecast works to replace some workshop sheds at St Marys, ($0.5 million, including contingency)
- We have removed the contingency component of the cost estimate, which was approximately 6% of the total costs (or approximately 10% of direct costs).

The reasons for these changes are discussed above.

The changes above sum to approximately $16.6 million. In reconciling these exclusions to the forecast in our original proposal, it is important to note that our previous forecast included a downwards adjustment of approximately $5.8 million that was not allocated to specific sites or site scope items in the original RLB

forecast. The specific changes in our revised proposal noted above are in place of this previously unallocated amount; hence the $10.8 million reduction to the forecast in our original proposal.

Property portfolio expenditure profile actual & forecasts (including original vs revised)



6. Top-down validation of our property capex forecast

In this section, we discuss our top-down validation exercise, which we have applied to aid in verifying the reasonableness of our overall property capex forecast.

This validation exercise has involved two forms of top-down analysis:

- intercompany benchmarking of reported NEM DNSPs' historical property expenditure
- trend analysis, comparing our overall property capex forecast to our historical property capex.

In this section, we will show:

- when adjusting for network scale and customer density, over the last 10 years, we have been one of the lowest spending, if not the lowest spending, DNSPs on property
- our revised capex forecast is in line with our recent historical property capex.

These positive results and conclusions that can be drawn have to be viewed in the context of other information we have provided in this document, including the old age profile of our property and the detailed analysis we have applied to develop and test major elements of our revised forecast, including formal cost-benefit analysis.

Benchmarking our property expenditure

We have compared our recent property expenditure against the other NEM DNSPs to determine the relative levels of expenditure.

The results of this analysis provide a useful indicative gauge of the efficiency of our recent historical property expenditure. In this regard, our relative performance against the other DNSPs is an important consideration in verifying that our forecast should reflect efficient costs and how reasonable it is to expect that efficient expenditure requirements could be higher or lower than historical levels.

To undertake this analysis, we have used the historical property capex and opex data that has been reported by all NEM DNSPs in their Category Analysis RINs, covering the period from 2008/9 to 2017/18. This expenditure has been escalated to place all expenditure in Real June 2020 dollars.

To ensure we can see the longer-term implications of DNSP property spend – rather than short-term ups and downs – we have considered the 10-year average expenditure, allowing for capex, opex and totex (where totex is considered the simple sum of capex and opex).

We have also normalised expenditure to allow for network scale and customers density, which can both affect the number of properties a DNSP will need to maintain and in turn the expenditure necessary to maintain the properties. For this normalisation process, we have used the customer number and line route length reported by the DNSPs in their Economic Benchmarking RINs.

Benchmarking results

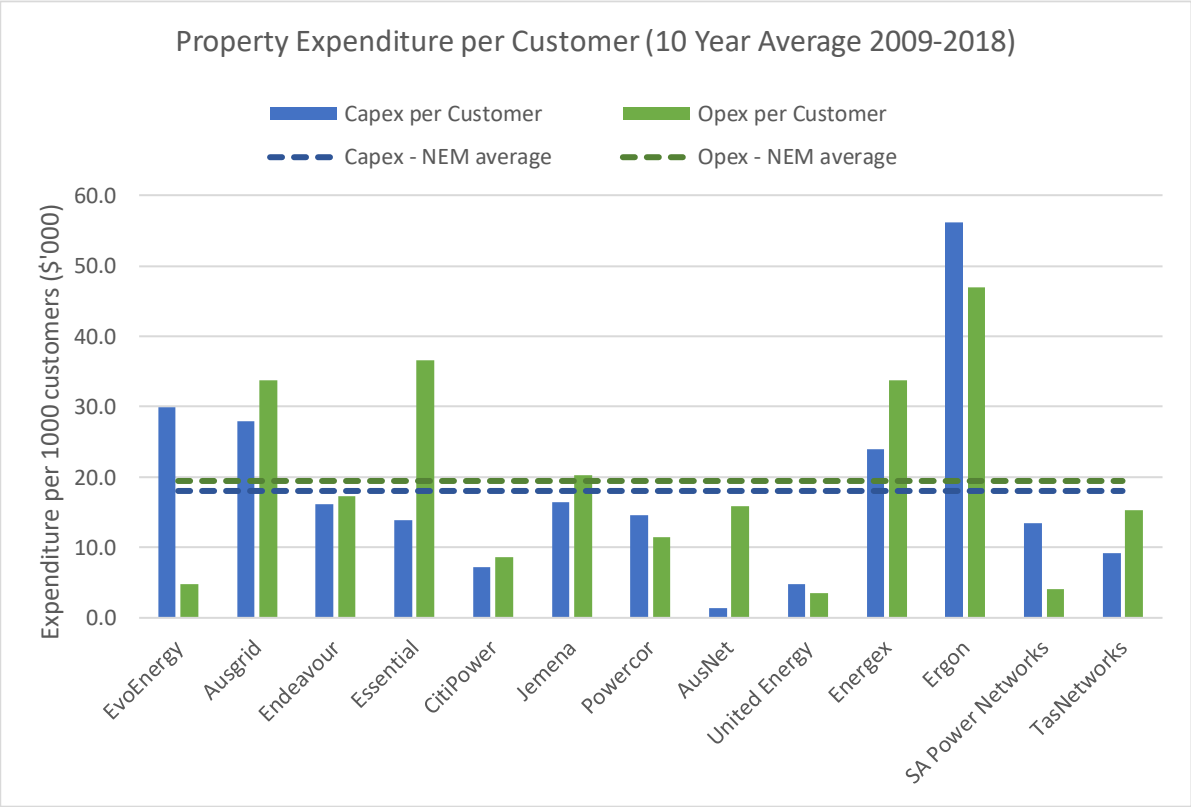


Figure 3 Average property opex and capex per customer metrics

Figure 3 above show each DNSPs' 10-year average capex and opex normalised by the average customer numbers serviced by the DNSP over that period. The chart also indicates the NEM average (ie average capex per customers and average opex per customer).

The analysis shows that our property expenditure has been well below the NEM average, for both capex and opex on a per customer basis. Over this period, we have had:

- the 5th lowest capex; and
- the 2nd lowest opex.

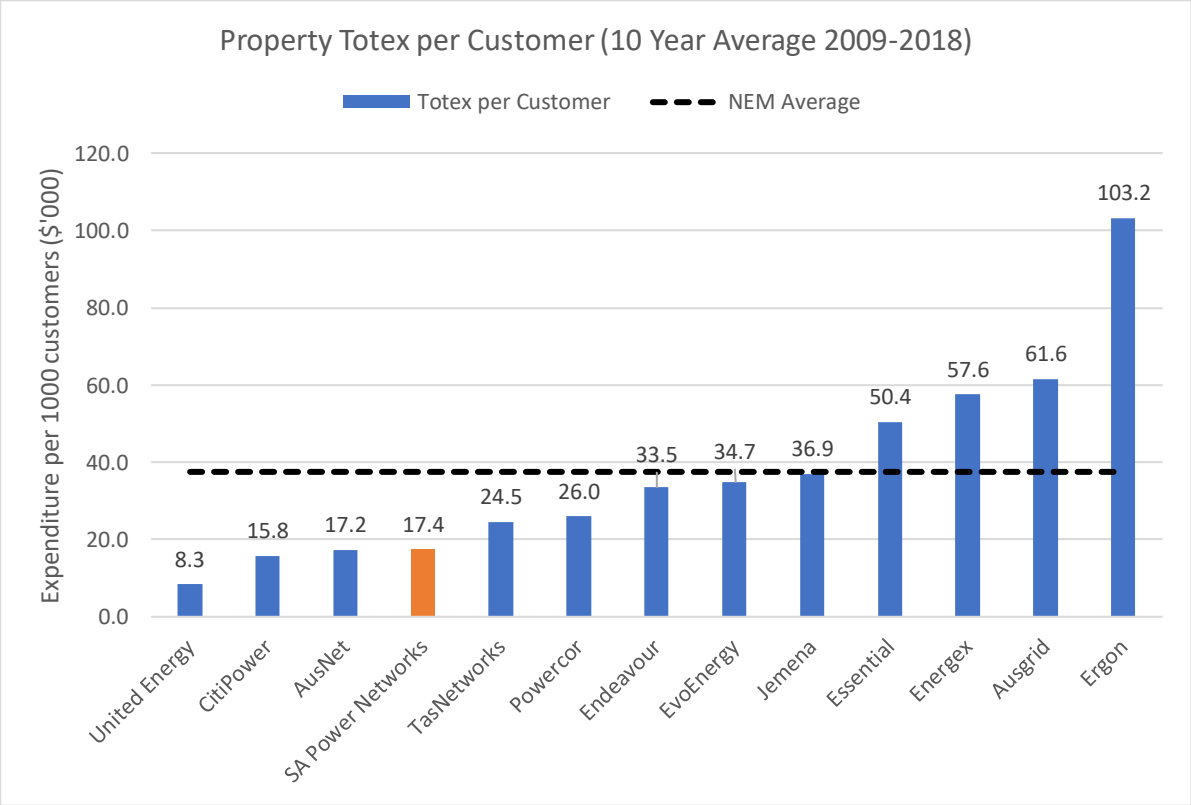


Figure 4 Average property totex per customer metrics – ranked lowest to highest

The relative position in capex and opex can be influenced by factors such as the DNSPs' capitalisation policies and/or leasing arrangements. Figure 3 shows that we have significantly higher capex relative to opex, similar to EvoEnergy and Ergon. However, other DNSPs have much higher opex relative to their capex, such as Essential and AusNet.

To allow for these differences, totex is a better metric to compare across DNSPs as it reduces the effects of capitalisation and leasing arrangements. Figure 4 above shows the average totex of each DNSP per customer and the NEM average. The chart also shows the ranking of the DNSPs from the lowest totex DNSP to the left to the highest to the right.

This analysis shows that we have had the 4th lowest property expenditure as measured by average totex per customer and our historical level of totex has been well below the NEM average, at less than half the average across the NEM. Only United Energy and CitiPower have materially lower totex, with our totex at levels very similar to AusNet.

However, this metric favours urban DNSPs such as United Energy and Citipower as they will have a denser network and so will be able to service the network and their customers using fewer properties. Our totex has been much lower than other rural DNSP, and significantly lower than Essential and Ergon.

A metric that is possibly more reflective of the scale of the network area that is being managed – rather than the volume of customers – involves normalising for line length. Figure 5 below show the equivalent chart to that above, but using average property totex of each DNSP per line route length.

Based on this metric, we are by far the lowest spending DNSP across the NEM, with our average totex 77% of the next lowest DNSP, Essential, and at only 17% of the NEM average.

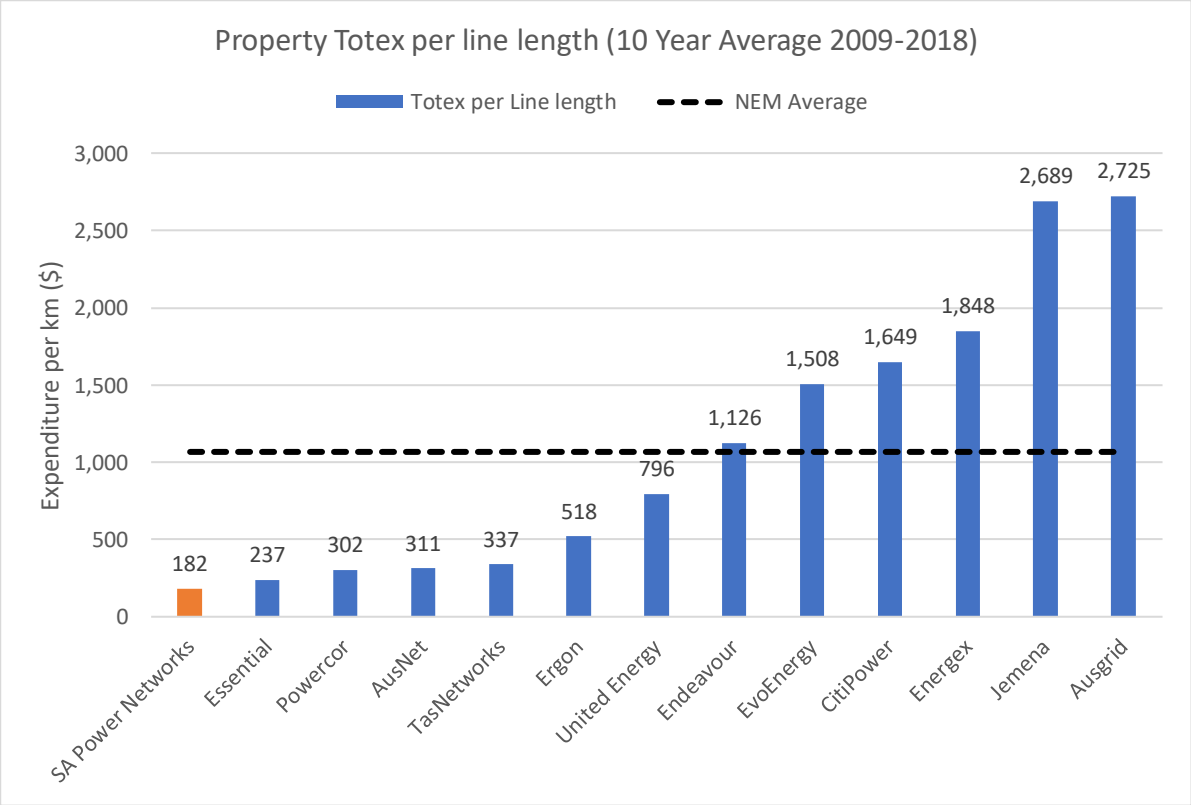


Figure 5 Average property totex per line length – ranked lowest to highest

Using the line length metric, it can be seen that DNSPs with larger service areas are grouped to the left of the chart. We have plotted totex per customer (y-axis) by customer density (ie customers per km of line length – x-axis) in Figure 6 below.

The chart also indicates a trend line which allows for the variation in customer density.

This analysis supports a view that we have had the lowest 10-year property spend, compared to our peers.

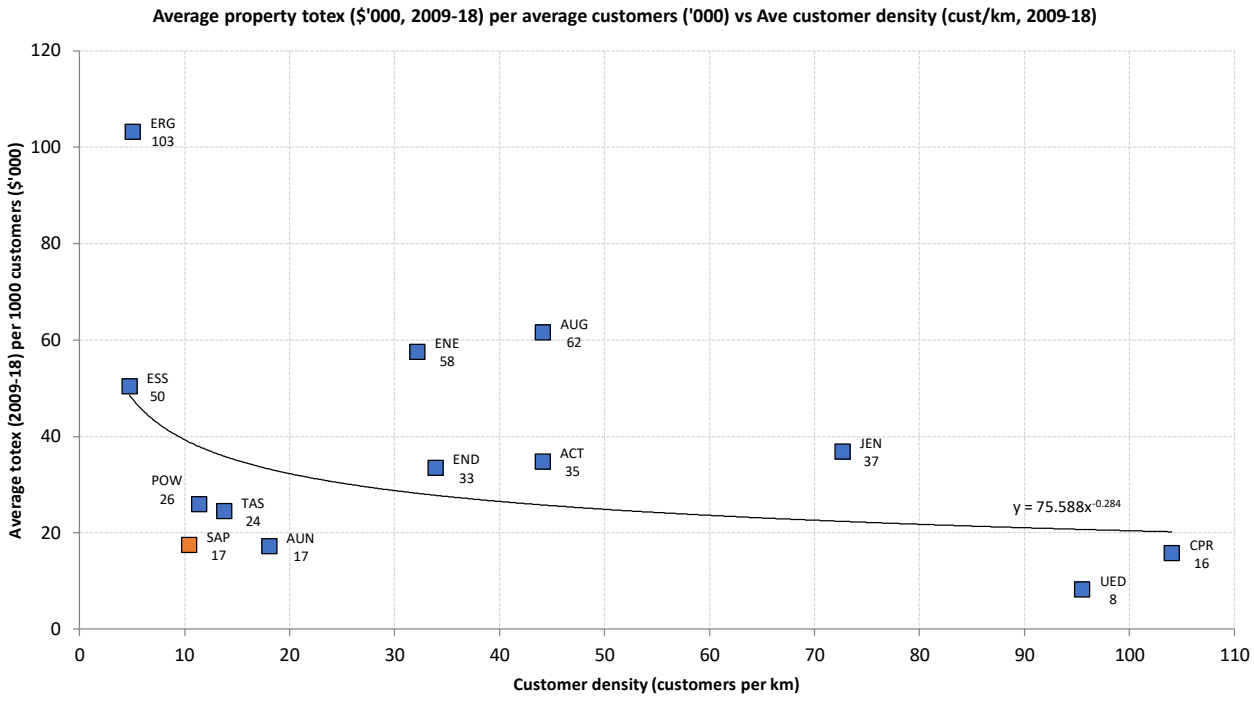


Figure 6 Average totex per customer vs customer density (2009-18)

Key conclusions from our benchmarking exercise

Based on recent historical expenditure on property, we have one of the lowest property spend levels across the NEM, and possibly the lowest level when we normalize for network scale and customer density. This result suggest that we could be considered a frontier business with regard to our recent levels of property expenditure.

Key inferences from this analysis are:

- our recent past spend on our properties is most likely efficient, at least relative to other NEM DNSPs, and there is no evidence of gold-plating, including early replacement
- assuming some of the other DNSPs lease a higher proportion of their properties, there is no clear indication that such leasing arrangements are resulting in lower overall costs, compared to our approach to manage our properties
- given the age profile of our properties, it is less likely we can achieve significant reductions from recent historical levels (ie there are likely far fewer opportunities for us to reduce costs compared to many other DNSPs).

Therefore, given we are in an early stage of a property replacement cycle, it is reasonable to expect that the efficient costs to maintain the performance of our properties as they age further would require an increase in expenditure in future regulatory periods from historical levels (ie costs in accordance with NER capex and opex criteria are unlikely to be reducing from average historical levels)

Comparison of forecast to the historical trend

Figure 7 below shows the annual time-series of our property historical and forecast capex. To aid in gauging the level of the forecast compared to historical levels, we have also shown the average levels in the current period, covering:

- the 10-year average of reported property capex, from 2008/09 to 2017/18;
- the average of the first four years of the current period, from 2015/16 to 2018/19; and
- our estimate of the average over the current period, allowing for our estimate of capex in 2019/20 based on our current plans.

This chart indicates that our revised property capex forecast is broadly in line with the recent increasing trend in historical capex:

- our total forecast over the next regulatory period of $50.7 million is below our estimate for the current period of $52.3 million; and
- our average per annum forecast of $10.1 million over the next period is 11% lower than the 10-year average between 2008/09 to 2017/18 of $11.4 million and only 10% higher than the recent 4-year annual average between 2015/16 to 2018/19 of $9.2 million.

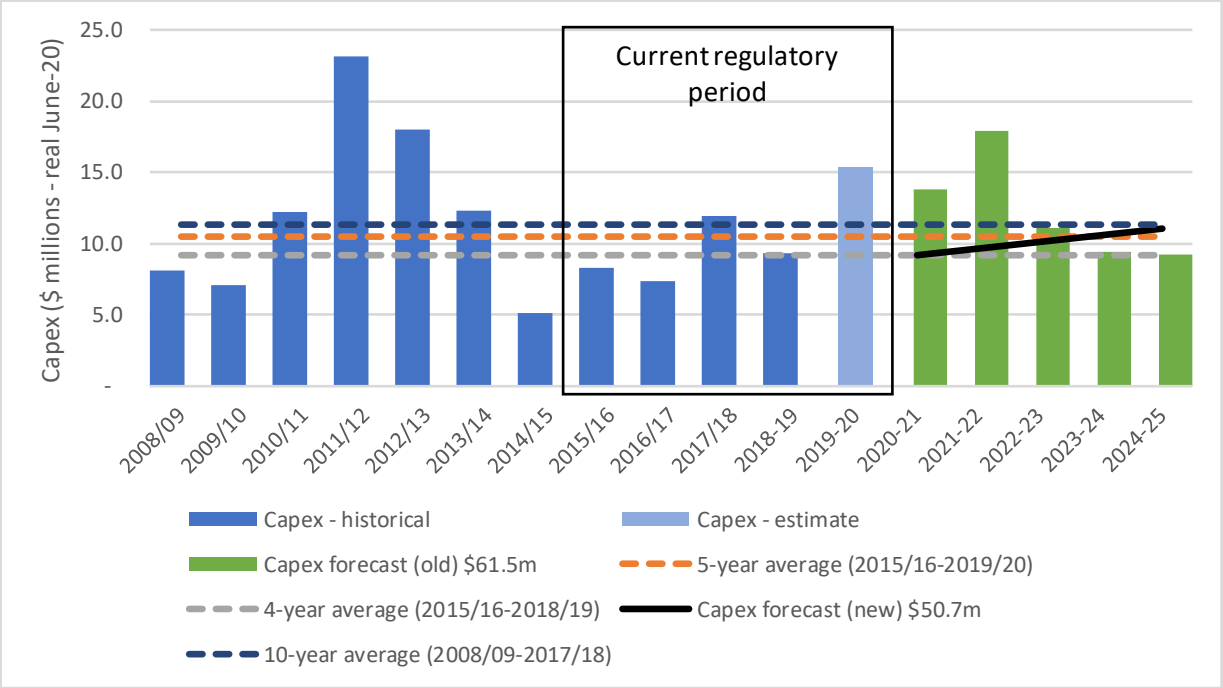


Figure 7 Comparison of historical and forecast property capex

This modest increase from historic levels is reasonable given:

- our old age profile of our property portfolio;
- the benchmarking results discussed above, which suggest we have been the lowest spending DNSP on our properties over the last 10 years; and
- the thorough process we have applied for this revised proposal to assess our needs, develop our forecast, and assess many of the major projects via formal cost benefit analysis.

Furthermore, this modest increase should still result in us being a frontier DNSP with regard to levels of property expenditure.

Concluding comments and relevance to AER concerns

Given the thorough process we have applied to develop our property capex forecast for the next regulatory control period and the results of our top-down validation exercise we have applied, we consider that our property capex forecast is a reasonable expectation of the capex required to address property needs over this period.

We have largely accepted the AER's concerns with our original property capex forecast. We have made significant improvements to our forecasting methodology to derive and validate this forecast, and we have prepared more comprehensive business cases for the major projects proposed next period.

These improvements to our forecasting process have resulted in a $10.8 million reduction in our property forecast, reducing it from $61.5 million in our original proposal to $50.7 million in our revised proposal, which is in line with the property capex we estimate we will incur this regulatory period.

This improved methodology and forecast should provide confidence to the AER that our revised forecast is reasonable.

Regarding the specific AER comments made on our original forecast, we make following comments and observations.

AER's key concerns with our major projects forecast

We consider that we have addressed the AER's major criticisms of our major projects forecast through our enhanced forecasting methodology, which included a more detailed assessment of the needs and formal cost-benefit analysis of a range of options.

Demonstration of the needs and relevance to non-compliance

We have provided a more comprehensive explanation of the issues at the sites in our new business cases. For the significant issues driving the need for the major projects, we have quantified the main incremental costs and risks due to the issues.

We consider the AER's concerns that we had not adequately explained the needs around non-compliance are now misplaced. The main issues which drive the need for the major projects are not non-compliance, but largely the poor condition of facilities and layout and design limitations, which are all associated with the old age of the facilities.

It is the risks associated with these matters that we consider when making decision to refurbish or upgrade and our forecast has been developed with this in mind. To be clear, many of the facilities being addressed through the major projects will be non-compliant in many aspects to modern standards, which imposes risks, irrespective of whether the relevant obligations require us to strictly comply. However, for cost-benefit analysis purposes, the costs and risks will largely overlap with those due to the condition, layout and design, which we have quantified. Therefore, we have not used the need for compliance to determine whether a major upgrade is justified, rather compliance will be opportunistically achieved through the major project.

Improved options and cost-benefit analysis

We believe we have addressed the AER's concerns regarding our options development and lack of quantitative analysis of the options. For the revised proposal, we have considerably improved our analysis of the preferred options for the major projects.

In our improved analysis for the revised proposal, we have developed a more comprehensive set of options, typically covering:

- the business-as-usual option, which we have more comprehensively assessed
- a low cost short-term piecemeal solution, which address some issues deferring the need for a major project
- major project solution(s), which are aimed at addressing the issues.

We have applied formal cost-benefit analysis to all these options and shown that each of our preferred options provide the greatest net-benefit, relative to the business-as-usual approach, and the preferred option and its timing is insensitive to key assumptions.

The reasonableness of our cost-benefit analysis assumptions

During discussion with AER staff, they requested evidence to support our assumptions in our cost benefit analysis, particularly concerning the quantification of the cost and risks associated the issues we are managing that are driving the need for the major projects.

We have tried to source and use available public information and historical information to develop the assumptions in our models. However, particularly when defining costs and risks associated with existing issues at the sites (eg consequence costs and event likelihoods), we have at times had to assume a cost or likelihood value or an underlying parameter which we consider is reasonable for our circumstances.

For example, we may assume the typical increased activity times or likelihood of an event due to an issue or a bundle of issues. In these circumstances, we assume values that we consider would be on the conservative side of a reasonable range given our circumstances (ie most likely will understate the cost).

We have embedded a word document in each cost-benefit model that identifies these assumptions and provides the context and basis for them. We consider that this approach is a reasonable given the following:

- We have undertaken cost-benefit analysis as expected by the AER for major works but other issues and associated costs are more minor, and it is not reasonable (ie in terms of effort vs accuracy trade off) to undertake detailed analysis and investigations for all minor works.

- For many matters, we have not been able to source public data that provides a suitable parameter that we can use with confidence in their validity.

For example, the AER has advised that we should use available public forklift accident data to demonstrate the reasonableness of some of our safety assumptions. However there is limited relevant data publicly available. We have sourced some data and used this to provide some validation. But significant caution is required as such public statistics are very general and homogenous, and do not provide an accurate guide to the incremental effect on forklift accidents due to the specific issues at specific sites. These general and homogenous statistics could be orders of magnitude higher or lower for the specific issues we have on site and our specific operations.

We have also found limited evidence of other DNSPs and other public and private businesses undertaking the form of cost-benefit analysis that we are attempting to apply to property projects of this form and scale. For example, cost-benefit analysis is more usually applied to new large site developments or almost complete site rebuilds, rather than the more limited major refurbishments and upgrade of part of a site, which we have allowed for in our forecast. Therefore, there is limited precedence of how matters should be quantified and what are reasonable assumptions to use in these circumstances.

Given this, in considering the reasonableness of our quantification of the site issues, including specific assumptions we have applied, it is important for the AER and other stakeholders to consider the overall results of our cost-benefit analysis in the context of the driving needs we have set out.

We have provided clear evidence that we have aged properties and facilities. We consider it is uncontroversial that the extent of issues at the facilities – as evidenced through the photographs in each business case – is now at a state where we should be considering major replacements, refurbishments and upgrades. Any criticism of a specific individual assumptions should be seen in this wider context. If the AER believes some assumptions may have overstated the cost or risk; however, it is likely that other assumptions may be too conservative. Further, we most likely will not have captured all costs and risks associated with the range of issues at each facility.

Therefore, the reasonableness and validity of our cost-benefit analysis and its findings should also be seen in the context of our top-down validation, where we have shown that we have an aging property portfolio and historically we have been one of the lowest spending DNSPs on property. Therefore it is reasonable to conclude that the overall findings of our cost-benefit analysis, irrespective of any concerns with specific assumptions, on balance, should support the preferred option.

AER's key concerns with our minor projects forecast

We believe we have addressed the AER's concerns with our minor projects in our revised forecast.

Demonstration of the needs

The AER raised concerns that we had not demonstrated the need for items within our minor works forecast, and provided examples such as landscaping, roof replacement, construction of undercover EWP parking and wash bays.

As we have explained in Section 5, some caution is needed in focusing in too much detail on specific items in our minor works forecast and we believe the reasonableness of the forecast has to be considered far more in the broader context of our overall property capex forecast, including the results our top-down validation exercise and the old age profile of our properties.

Our overall revised forecast is in line with recent historical levels, and is reasonable given we have an old population of properties and we have been one of the lowest, if not the lowest, spending DNSP on property over the last 10 years.

As explained in section 5, although we have used a bottom-up approach to prepare the minor works forecast based on the assessment of issues at each site, this is only to provide an ***indicative*** forecast of needs and costs to address those needs.

We have not undertaken a detailed analysis and assessment of each item. There are 482 direct cost items that constitute this forecast across 19 different properties, which concern largely unrelated issues at these sites.

We have provided further qualitative explanations in this document of the needs associated with the highest cost items in this forecast, which represent nearly 60% of the minor works component. This includes the wash bays and undercover parking raised by the AER, which are two of the larger components in the forecast, albeit still only 8% and 6% of the minor project forecast (and only 4% and 3% of the total property forecast).

With regard to roof replacements and landscaping examples raised by the AER, these are very small components: roofing represents 3.6% of the minor projects forecast and landscaping is less than 0.1% of the forecast.

In the context of our forecast for minor project sites, we consider it inefficient to drill down into that type of detail and expect a thorough rationale. For example, the AER questioned whether there was a sufficient need for the scale of proposed roofing replacement (and whether replacing a selection of roofing sheets rather than all would be more prudent). We have not undertaken a review of those options to determine a preferred option at this time.

Similarly, the AER staff questioned whether all items would be capitalised, and considers some items such as landscaping would be expensed. We have developed our forecast to align with our capitalisation policy. In the case of the landscaping example raised by the AER, the landscaping we included was not routine landscaping maintenance that we undertake at our properties and will be allowed for in our opex forecast. Instead, it is more material, one-off improvement landscaping, which we undertake from time to time to improve the visual standing of aged properties, particularly when they fall well below accepted standards within the local community. These types of landscaping projects are historically capitalised, and we consider the capitalisation of works of this type to be the appropriate treatment.

In the context of our overall forecast, the AER's concerns with the details of our minor projects forecast are not material and following further review and analysis, we may downgrade the needs for some minor items. However, some items could be worse, and so will need greater work. Also we expect other needs will arise during the next period, which we are unaware of at this point. We consider it reasonable in these circumstances to assess our minor projects forecast in the broader context.

Given the age of our properties and the top down analysis we have undertaken, we believe there is sufficient evidence to accept that our overall forecast most likely reflects our ongoing needs, without the requirement for further detailed justification for individual line items.

The justification for some upgrade works in the minor works forecast

Related to the point above, during discussion with the AER, they have raised concerns that our minor works program includes some elements that it may consider augmentations as they appear to be new additions to the sites (eg the undercover EWP parking, wash bays and upgrade to the security systems), and as such, it would usual require evidence of the prudency and efficiency of undertaking these works.

We may expect this requirement for larger new projects or program, and particularly where this is resulting in a material increase in expenditure in an expenditure category. However, as we have noted above, in aggregate, each of these items is still small relative to the overall property forecast. In our opinion, it is likely that these types of small upgrades will be included in similar minor works programs of other DNSPs. Further, our overall property forecast is not increasing from historical levels, and our top-down analysis suggests our forecast is reasonable.

Therefore, in these circumstances, minor site improvements of this type should not be subject to the requirement for this form of bottom-up quantitative justification and scrutiny.

Other AER concerns

The AER raised other concerns, which we have addressed through our revised forecast.

- The AER noted that we included a contingency amount in our forecast, which it did not usually allow. We have removed that component from our revised forecast.
- The AER considered that we had not factored in opex savings from property capex into our opex forecast.

  Our cost-benefit analysis has found that there will only be modest localised reductions in opex (and very small improvements to supply reliability) associated with the operations at the specific sites we are proposing a major project.

  For our Original Proposal, which allowed for an increase in the total property capex from historic levels, it may have been reasonable to assume that localised improvements would outweigh other small increases in opex (and supply reliability costs) that would be expected as other properties age.

  However, for our revised forecast, we have now excluded the Seaford and Gumeracha major projects and some other works planned for other properties. Our revised forecast is broadly in line with historical levels of expenditure. Given the old age profile of our properties and our top-down validation, we consider there is sufficient evidence for the AER to accept that it is reasonable to assume that any localised benefits (in opex reduction or improved supply reliability) at the five properties where we are proposing a major project properties will no longer outweigh the worsening that can be expected to occur due to the aging of all other 44 sites.

7. Regulatory treatment

We have included $50.7 million in the capital expenditure forecast in our regulatory proposal to the AER to allow for refurbishments and upgrades at our property portfolio. We believe that the AER can have confidence that this forecast is in accordance with the National Electricity Rules (NER), given the methodology we have applied to determine the need for this project and its scope and cost.

Given the range of issues at our properties and their anticipated further aging over the next regulatory period, we consider that the program's forecast capital expenditure is in accordance with the NER capex objectives as it is required to:

- continue to comply with regulatory obligations associated with the design, construction and operation of the properties, and our broader safety and duty-of-care obligations;
- maintain the safety of the distribution system through the supply of standard control services; and
- maintain the quality, reliability and security of supply of standard control services.

We also consider that the program's forecast is in accordance with the NER capex criteria as it reflects the efficient cost that a prudent operator would require to achieve the NER capex objectives.

Most notably, for the works that represent the majority of our major projects, we have applied a rigorous approach to:

- assess the issues at each of these properties and quantify specific major issues
- developed a range of remediation options and determine the detailed scope of works and costs
- undertaken comprehensive cost-benefit analysis of the options, including continuing with a business-as-usual approach
- selected the option that provided the greatest positive net benefit, compared to the business-as-usual option and tested that these results were not sensitive to key assumptions.

Furthermore, we have applied top-down analysis to verify that our aggregate property capex forecast should reasonably reflect prudent and efficient costs, including:

- benchmarking our historical expenditure using published RIN data to verify that our recent expenditure levels are below our peers and most likely reflects a frontier NEM DNSP; and
- comparing our forecast expenditure with historical levels and trends, to verify it is in accordance with recent levels, which we consider is reasonable given the old age of our property portfolio and our very good benchmark performance.

We have engaged independent experts to assist us in some of these tasks. These experts have specific experience in assessing properties and developing scope and cost estimates, which should ensure that our cost estimates reflect prudent and efficient costs to address identified needs.

We are not proposing to include any adjustments to other incentive mechanisms because of this program. We recognise that the major projects represent a significant increase from recent historical levels at these specific sites. However, as we have demonstrated through our cost-benefit analysis, a major benefit achieved by these investments is a reduction in safety risks.

We do consider that the increased investment at these sites will result in some localised improvements to the efficient operation of these properties. This should produce benefits in terms of improved productivity associated with these facilities and supply restoration improvement to our customers. These benefits have been important considerations in why we believe that our investment in these major projects is necessary and should result in a net benefit.

However, these localised improvements at these properties (for example, in reduced opex or improved supply reliability) will be offset by the effects of the overall ageing of all our properties (and our network in general to some degree). Therefore, we do not consider that any other adjustments are appropriate in these circumstances.

This position is reasonable, given:

- we have demonstrated in this document that it is reasonable to assume that we are in the earlier stage of the replacement cycle of our property portfolio;
- our actual costs most likely reflect efficient costs; and
- we are not proposing a significant increase in expenditure across the portfolio from expenditure levels in the current regulatory period.