SA Power Networks

Supporting document 5.25

Clare Business Case

2020-25 Revised Regulatory Proposal

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SA Power Networks

Clare Business Case

Contents

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Executive Summary

Clare is a 7,200m^2 is a regional depot, established in 1967, which supports the provision of services to our customers in the Clare Valley region and allows us to manage our distribution network in that region, including responding to network outages.

We have undertaken very little major refurbishment of the facilities at this site since its establishment.

Major refurbishment investment at this site is now justified based on reducing ongoing reactive repairs costs and reducing safety, operational and customer service (including reliability performance) risks.

We have developed a **$1.55 million** (real June $2020) capital forecast to refurbish and upgrade the facilities at our Clare property over the next regulatory control period, 2020/21 to 2024/25.

Our forecast allows for the **major replacement and refurbishments** of the two main components of the site:

- **$0.62 million** is for the replacement of the pavement (and other external works), which covers a large area of approximately 5,600 m^2. The pavement is old and in poor condition, with extensive cracking and potholes, which we have been recently addressing through a piecemeal reactive repair strategy. Its existing layout is also not ideal for the current operations of the site and there are drainage problems that can cause flooding, partly caused by the poor condition of the pavement.
- **$0.93 million** is for the replacement and refurbishment of the three main buildings at this site. These buildings are old and have a range of issues driving the need for replacement, associated with their condition and the state of their facilities and amenities

To develop this forecast we have:

- assessed the current issues with these components
- quantified the cost and risk associated with the issues
- developed various options for managing these issues, including continuing with a business-as-usual approach[1]; and
- for each component, separately undertaken cost-benefit analysis to determine the options that maximises the net-benefit (in present value terms).

[1] The assessment and costing were undertaken by an external quantity surveyor, as discussed in our Original Proposal. However, we have reassessed the issues for the Revised Proposal.

The costs and benefits of the proposed investment over the longer term of 40 years are summarised in the table[2] below:

Clare – Capital cost		
	Major works	**Total ($)**
Capital investment cost	$1.55 m	$1.55 m
Clare – Benefits		
Benefit type	**Description**	**Benefit ($)**
Customer service – PRICE Ie. Benefit in reduced/avoided SA Power Networks costs – capital expenditure (**capex**) and operating expenditure (**opex**)	• This reduction in our costs is driven by the improved operation costs resulting from these works (which we estimate will provide benefits of approximately **$1.6 million** in the long term); but • This reduction is **offset** by an increase in the capital expenditure to undertake the major works (which we estimate will be approximately **$1.4 million higher** than the business-as-usual option in the long term).	+ $0.2 m
Customer service – QUALITY Ie. benefit in reduced/avoided economic cost of supply reliability	• Additionally, we estimate that the major works reduce risks to the supply reliability we provide to our customers. We have estimated the value of this small improvements to be worth approximately **$0.7 million** over the long term	+ $0.7 m
Safety risks Ie. benefit in reduced/avoided economic cost of deaths and injuries	• Our cost benefit analysis has shown that these works should improve existing safety risks associates with the current state of the relevant facilities at Clare. We estimate that, in total, the **$1.55 million** investment in these facilities will provide long term benefits in reduced safety risks of approximately **$0.8 million** compared to a business-as-usual approach.	+ $0.8 m
	Total NET benefit (relative to BAU)	**+ $1.7 m**

Regulatory treatment

The Australian Energy Regulator's (**AER**) Draft Decision did not accept our forecast and made no allowance for any capex at this property, with its main concerns being that we had not sufficiently demonstrated 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.

We consider that we have address all the AER concerns in developing the forecast contained on this business case. We have included $1.55 million in the capex forecast in our SA Power Networks 2020-25 Revised Regulatory Proposal (**Revised Proposal**) to the AER to allow for the replacement and refurbishments and upgrades of the facilities at Clare. This forecast is lower than the equivalent forecast in our SA Power Networks 2020-25 Regulatory Proposal (**Original Proposal**), $1.6 million, due to the exclusion of the contingency component in our original forecast.

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.

[2] Note – Values quoted within table may contain rounding errors/issues when summing to 1 decimal place.

We are not proposing to include any adjustments to other incentive mechanisms because of the forecast at this site. We recognise that the forecast at Clare represents a significant increase from recent historical levels at this site, which should result in localised benefits (eg reductions in operating costs). However, these benefits will not offset the aggregate effects of the overall ageing of all our properties, given the reduced overall property forecast in our Revised Proposal.

Stakeholder feedback

We have also engaged with our Customer Consultative Panel in developing our revised total property forecast, including providing them with a visit to some sites. While the Panel did not visit the Clare property it did visit our Marleston North site which has facilities of a similar age and condition as Angle Park. The Panel was broadly supportive of the need to undertake major refurbishment and upgrade works, and the approach we have adopted to develop our revised forecast.

1. Introduction

Purpose statement

We have forecast the need for $1.55 million (real June $2020) in capex to refurbish and upgrade our Clare property over the next regulatory period (ie 2020/21 to 2024/25).

The purpose of this document is to:

- set out our capex forecast of the refurbishment and upgrade works at our Clare property;
- provide the justification for this forecast, including the needs it will address and the benefits it will provide; and
- explain how we consider this forecast should be treated in our Revised Proposal to the AER.

In addition to this document, the justification for the forecast capex at Clare is also supported by the following:

- Clare cost-benefit models, Supporting Document
- 5.25.1 - Clare Building model, Revised Proposal (confidential) and Supporting Document 5.25.3 - Clare Pavement model, Revised Proposal (confidential), which are spreadsheet models we have prepared to support our justification for the major project components at Clare.
- The Clare photographic evidence data pack, Supporting Document 5.25.2 - Clare Photographs, Revised Proposal, which provides detailed high-quality photographic evidence of the major issues at Clare that are driving the needs.
- "2020-25 Property Capex Forecast Regulatory Justification", which is Supporting Document 5.21 to our Revised Proposal and provides further justification for our overall property capex forecast.
- "Property Services Capital Expenditure 2020-2025", which was Supporting Document 5.31 - Property Services Capital Expenditure 2020-2025 to our Original Proposal and provides further information on our property strategy, including how we manage properties and external reviews and advice we sought to develop our property forecast.

Appreciation of AER concerns with Original Proposal

In our Original Proposal to the AER, we included $1.6 million in our capex forecast to undertake refurbishment and upgrade works at our Clare property 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 did not accept our forecast and made no allowance for any capex at this property. 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.

We have reviewed our previous supporting documentation and accept that this was deficient in a number of areas. In general, we accept the AER criticisms. To address these matters, we have undertaken extensive further work to reassess the Clare forecast and prepare improved supporting documentation, including this business case and cost-benefit analysis models.

Evidence of the need

The AER has raised the lack of evidence of the 'need' in our Original Proposal as a significant matter in its rejection of our forecast. Evidence of these 'needs' are contained in:

- The appendices of our Property Services Capital Expenditure documents prepared by Rider Levett Bucknall (**RLB**), which was a supporting document to our Original Proposal[3]. 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.
- Appendix B of this business case where we have provided further photographic evidence of the main issues at Clare.
- Supporting Document 5.25.2 - Clare Photographs, which provides detailed high-quality photographic evidence of the needs.

In addition:

- The quantification of the need, which we have undertaken for the cost-benefit analysis provides a form of evidence of the materiality or scale of the needs.
- The overall need for our revised property capex forecast is evidenced through our top-down analysis, which is discussed in Supporting Document 5.21 - 2020-25 Property Capex Forecast Regulatory Justification.

Further details of how we have addressed the AER and other stakeholder concerns are provided in Supporting Document 5.21 - 2020-25 Property Capex Forecast Regulatory Justification.

Importantly, our enhanced methodology has resulted in a change to the capex forecast for Clare. This has resulted in a reduction in the capex forecast from $1.6 million in our Original Proposal to $1.55 million in this document and our Revised Proposal.

Overview of the Clare property

Clare is a 7,200m^2 regional depot established in 1967. This property enables us to provide a range of services to our customers in the Clare Valley region and manage our distribution network in that region, including responding to network outages.

The site includes:

- a large 5600m^2 pavement area, including internal roadways, loading/unloading bays, external storage areas, and staff and fleet parking facilities
- three main buildings, providing office facilities, other amenities, workshops and covered storage.

Appendix A provides further relevant background information associated with the Clare site and various facilities at this site, which are relevant to appreciating the significance of the issues at this property and the risks and costs driven by these issues.

Regulatory obligations relevant to determining needs

There is a range of regulatory instruments we must have regard to when managing our property portfolio and determine needs. These obligations cover a range of matters associated with building and site design,

[3] Section 8.2, Attachment 2, Supporting document SAPN - 5.31 - Property Services Capital Expenditure 2020-2025, SA Power Networks 2020-25 Regulatory Proposal, January 2019

layout, construction and operation. For existing facilities, where strict compliance is not obligated, we tend to apply a risk-based compliance method. 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 forecast in this document to align with this risk-based process. However, the key needs of the major works at Clare, which are summarised in Section 2 and explained in more detail in Appendix B, are not compliance issues. That said, the preferred solution will allow us to opportunistically ensure compliance with current obligations.

Further details of our property obligations and how we manage these are provided in Supporting Document 5.21 - 2020-25 Property Capex Forecast Regulatory Justification.

Structure of document

This document is structured as follows:

- In *Section 2 (Major capital works components)*, we discuss our evaluation of the major issue at the site, including our development of credible options and option costs, the effect of these options on existing costs and risks, and our formal cost-benefit analysis of these options.

- *In Section 3 (Our preferred capital program and expenditure forecast)* we summarise our overall preferred option for Clare, including the main benefits that will be achieved by this investment.

- The document concludes in *Section 4 (Regulatory treatment)* by discussing how we believe the costs and consequences of this program should be treated in our Revised Proposal to the AER.

- In *Appendix* A *(Overview of Clare)*, we provide relevant background information associated with the Clare site and various facilities at this site, which are relevant to appreciating the significance of the issues at Clare and the risks and costs driven by these issues.

- We then set out the specific issues at Clare in *Appendix B (the existing issues at Clare)*, including the facilities affected by the issues, the causes of the issues, and the costs and risks due to the issues. In this section, we also identify the issues we are classifying as major and so assess using formal cost-benefit analysis.

2. Major capital works components

We have separated our forecast for Clare into two components where we consider the needs of these components are related and sufficient to warrant consideration of major replacement and refurbishment projects in the next regulatory period:

- the outdoor pavement area (and associated external works)
- the three main buildings (main offices, engineering offices and workshop).

In this section, we focus on these two components and evaluate various approaches to manage the issues associated with these two components moving forward. Importantly, we will:

- identify various credible options and the cost of implementing those options, include continuing with the current approach (ie the business-as-usual option) and alternatives that address the issues using different approaches and time frames
- discuss how each option affects the current costs and risks associated with the issues; and
- present the results of cost-benefit analysis that we have applied to these options.

We have used the cost-benefit analysis to determine whether the benefits of the options will exceed their costs (in present value terms and relative to the business-as-usual option), and to identify which option will provide the greatest net benefit. We have also used the cost-benefit analysis to test key assumptions, in order to understand the sensitivity of the finding to these key assumptions.

Importantly, through this analysis we have found that the planned replacement of the pavement and a major refurbishments and upgrade of the buildings over the next regulatory period should provide the greatest net benefits, compared to other alternative options. Further, this result is generally insensitive to reasonable changes in the key assumptions.

We discuss our analysis of the pavement and buildings separately below.

Option involving an alternative site in the Clare township

It is important to note that it has been our intention for some time to consider a major project to address the range of issues at Clare. One of these was the divestment of the current site and movement to a new location in Clare.

Although, this option would address all the issues at the current site and could provide some modest additional benefits (particularly addressing the council's key concerns discussed below), it would be at a much higher cost than the options discussed below. Therefore, this option would not have provided a greater net benefits than the options discussed here, and as such, we have not considered this as a credible option in our cost-benefit analysis.

Pavement and external works

Statement of the need

The pavement covers a large area (approximately 5,600 m^2), which is used for various functions associated with the depot operations and encompasses:

- carparking for site staff and visitors
- various parking locations for specialist crew vehicles, including elevated work platforms (**EWP**)
- various storage areas for networks assets, equipment and materials
- loading and unloading areas, associated with the various storage areas
- the internal roadways
- concrete spoon drains for stormwater management.

There are a range of major issues with this pavement area driving its needs:

- **The poor condition of the pavement** - The current pavement was original constructed in the late 1960's. Since that time the volume and weight of the heavy vehicles transporting materials to and from this site has increased. Because of the age of the pavement and its heavy use, there has been an increasing volume and severity of areas of the pavement with significantly degraded condition. We have been repairing the worst affected areas through a piecemeal reactive repair program.
- **The existing layout and traffic flow arrangements of the site, including loading/unloading and storage arrangements** - The overall development of the site since its establishment, particularly the number and types of vehicles that now use the site, now means that the existing layout is not ideal and optimal and creates a number of issues with the functioning of the site. In particular heavy vehicles that pass very close between the two main buildings
- **Height clearance limitations** - The height clearances in various locations within the site are limiting for our more modern vehicles, particularly the larger vehicles delivering to and from the site and our field crews EWP vehicles. This causes some safety risks associated with vehicle movements around the site and constrains our operations.
- **On-site parking limitation** - There is insufficient vehicle parking for staff and commercial vehicles on site. The location of the site is in an expanding residential area, and therefore, parking off-site can cause issues both to our staff (to find parking) and issues with the local community. Since around 1997, the local council has raised concerns with us on the location of this facility, including its impact on the local community and the traffic management issues this causes.

We have quantified the costs and risks due to these issues. These costs and risk are summarised in the table below (note, operating costs in this table do not include direct remediation costs, such as the preventative maintenance and reactive repair of the issues).

Table 1 Summary of pavement costs and risks due to the issues

Cost category	Expected annual value ($'000)
Operational cost	$20.9
Safety Cost	$24.4
Supply Reliability Cost	$16.8
Total	**$62.1**

Further details and explanations of the issues and needs of the pavements and the quantification of the costs and risks are provided in Appendix B. This appendix also provides photographic evidence of the needs, and is further supported by Supporting Document 5.25.2 - Clare Photographs.

Development of options

We currently implement a reactive "patched" repair approach to address these areas; although, during the current regulatory period, we have not undertaken any significant repairs. We have developed three credible options for managing these issues moving forward. The options range from continuing with a current approach to the full planned replacement of the pavement.

These options are summarized in the table below, which provides an overview of the scope of each option and qualitative overview its costs and its expected effect on current issues.

Table 2 Overview of pavement options

ID	Option	Scope of option	Comments on option
1	**Business-As-Usual (do nothing)**	Continue with current maintenance and operational regime (ie largely reactive patching of the pavement as required, with controls as necessary to manage risks associated with areas of poor condition and the patching approach).	Low maintenance and capex costs in the short term, but no improvement to existing issue risks and costs. Patching costs and/or issue risks and costs would likely worsen as the pavement ages further. This option is considered a short-term solution, requiring higher capex later to fully refurbish the pavement. Note, however, for cost-benefit analysis, we have not assumed that a replacement will occur.
2	**Piecemeal remediation (to defer the need for replacement)**	Continue with current maintenance regime, but undertake some piecemeal remediation and repair to maintain usage of current site, largely in current form.	Modest capex and ongoing opex, and small reduction in some issue costs and risks. This is assumed to be a short-term solution that will require higher capex later to fully replace the pavement. For modelling purposes, we have assumed that the pavement will be replaced in 10 years
3	**Replacement over next period**	Replacement of full pavement during next regulatory period.	High capex in short term, but reduced opex and removal of existing issue costs and risks.

During discussions with stakeholders, including the AER, they raised other options as possible lower cost solutions associated with our pavement needs, including:

- using alternative forklifts more suitable for the uneven surfaces of a degraded pavement; or
- lower cost solutions to repair areas of poor condition bitumen or concrete (eg resurfacing / releveling bitumen or concrete areas).

We do not consider that either of these options are credible options for Clare.

With regard to alternative forklifts, we already use forklift types designed for outdoor 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 operations at Clare. Importantly, switching to an "all-terrain" tyre type would also contribute to significant accelerated degradation of the pavement 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). Our business-as-usual option allow for these types of repair to patches of pavement as an option for consideration in our cost-benefit analysis. It is important to stress that these options are effectively repair options. Furthermore, they are not usually long-term solutions.

We have allowed for an enhanced remediation option, which allows us to address some of the significant external issues and apply a greater level of pavement repair, which will allow for more of these approaches to a limited degree. However, an option that allows for some form of resurfacing or relevelling of a significant portion of the pavement above what will be allowed for in our options is not a credible option.

Options capital cost estimates

To develop our capital cost estimate for each option, we have:

- assumed the business-as-usual reactive repair cost would be on average $5,000 per annum, as there has been no reactive repair in the current period, which we do not consider is credible moving forward, even in the short term
- used the cost estimates prepared by RLB and detailed in our Original Proposal to the AER as the basis of planned replacement and piecemeal remediation cost estimate.

Further details of the methodology and assumptions are provided in the Clare pavement cost-benefit analysis model in Supporting Document 5.25.3 - Clare Pavement model (confidential).

Table 3 Pavement option capital cost estimates

ID	Option	Capex ($'000)			
		Next regulatory period		Following regulatory periods	
		Reactive	Planned	Reactive	Planned
1	**Business-As-Usual (do nothing)**	$26	-	$27[a]	-
2	**Piecemeal remediation**	$19	$60[b]	$20	$569
3	**Replacement over next period**	2.5	$619	2.5	

a – for this option reactive costs will continue beyond this regulatory period

b – for this option, we assume a $10,000 uplift in costs allow for the increased cost for the full replacement (see further discussion in cost-benefit model)

Impact of options on existing issues and new issues

We have estimated how each option will impact the costs and risks caused by the major issues (Table 4). Key points to note here are as followings:

- for the business-as-usual option, we have assumed that these costs and risks will not increase significantly with time; rather, we are assuming that reactive repair activity will increase and this will maintain these costs and risks around current level
- for the piecemeal remediation option, we are assuming that works in the initial stage can be targeted to remove a greater portion of the cost and risks (see assumptions in the table below).

Table 4 - Summary of impact of options on costs and risks

ID	Option	Existing issues			
		Operational inefficiency	Safety risk	Operational risk	Supply reliability
1	**Business-As-Usual (do nothing)**	Unchanged / worsening	Unchanged / worsening	Unchanged / worsening	Unchanged / worsening
2	**Piecemeal remediation**	Improved (30%)	Improved (20%)	Improved (30%)	Improved (30%)
3	**Replacement over next period**	Avoided	Avoided	Avoided	Avoided

Cost-benefit analysis of options

We have conducted cost-benefit analysis of the three options discussed above. Further details of the cost-benefit analysis model and assumptions are provided in the Clare pavement cost-benefit model in Supporting Document 5.25.3 - Clare Pavement model (confidential).

The key results of this analysis are summarized in Table 5 below. These results indicate that that full replacement of the pavement in the next period should provide the greatest net benefit. Importantly,

implementing that option should realise a net benefit of $1.1 million over continuing in the longer term with a business-as-usual approach of reactive patch repairs of the pavement.

Table 5 Summary of results of the cost benefit analysis of the pavement options

		Present value ($ million)[a]		
ID	Option	Option costs	Issue costs and risks	Net benefit
1	**Business-As-Usual (do nothing)**	*0.2*	*1.5*	-
2	**Piecemeal remediation**	0.5	0.4	0.8
3	**Replacement over next period**	**0.6**	**0.0**	**1.1**

a – discounting assumes our proposed pre-tax real WACC of 2.63%

Other important points to note from these results are as follows:

- The net benefit is driven by the avoided costs and risks due to the issues with the pavement area.
- All options have significantly higher option costs in the long term than the business-as-usual option. These higher costs reduce the overall net-benefit of these options. However, a business-as-usual approach over the long term is an unsatisfactory solution, given the age and condition of the building. Therefore, the costs of this option are likely to be higher if one of the other solutions was required in say 10 to 20 years time (which itself is probably an optimistic estimate).

The main finding that the replacement of the pavement over the next period provides the greatest net benefit tends to be insensitive to key assumptions in the model. Of most note here:

- This result is largely insensitive to increases in the discount rate from the assumed WACC of 2.63% (noting, higher discount rates tend to favour deferring capex). The discount rate would need to increase to approximately 11% before the piecemeal remediation option would be a more economic option, and increase to 20% before the business-as-usual option was more economic.
- This result is also insensitive to the replacement cost. This cost would need to increase by more than 185% (ie increasing to $1.76 million) before the business-as usual option would be a more economic option. Obviously, this insensitivity is related to the discount rate. However, even with a discount rate of 5%, the replacement cost would need to increase by approximately 110% to approximately $1.30 million before the business-as usual option would be a more economic option.
- Related to the above result on option cost insensitivity, this result is also insensitive to the timing of the replacement (ie there is not a greater net benefit in delaying the replacement by say one year). In this regard, the current issue costs and risks are valued at $62,147 on average per annum. Therefore, the benefit of a one-year delay in the capital costs of the replacement would be approximately $23,632[4], which is significantly less than the benefits of removing the issues.
- Similarly, our estimate of the issue costs and risks could reduce by 70% before there would not be a net benefit in avoiding these costs and risks by the replacement of the pavement.

Based on the above, it is reasonable to conclude that the option to replace the pavement over the next period should maximise the net benefits over reasonable ranges for the key assumptions.

[4] Assuming a 45 year life of the pavement.

Buildings refurbishments and upgrades

Statement of the need

The Clare site includes three main buildings:

- the main office and administration building
- the engineering office
- the workshop.

All these building, including their non-structural elements, including fixtures and fittings are aged resulting in a range of issues that we are currently managing. Individually, many of these issues are not major, but together they represent a major issue.

The main office and administration building was built in the mid-1960's and still has the majority of the original fit-out. The layout of the building is also sub-optimal and not conducive to current collaborative work methods. The toilets and shower amenities are in poor condition and original roof, wall and cubicle fit-out. Timber components have had previous termite damage and repairs and the floors have original asbestos tiles. The engineering office and workshop are structurally sound. However, many of the non-structural elements and fixture and fittings are aged and in poor condition. Jarrah columns and trusses in the workshop are showing signs of decay and cracking and have been knocked by forklifts in the past. The low height of this timber roof structure also limits the height of storage bays and shelving.

We have quantified the costs and risks due to these issues. These costs and risk are summarised in the table below (note, operating costs in this table do not include direct remediation costs, such as the preventative maintenance and reactive repair of the issues).

Table 6 Summary of pavement costs and risks due to the issues

Cost category	Expected annual value ($'000)
Operational cost	$34.9
Safety Cost	$6.0
Supply Reliability Cost	$12.0
Total	**$52.9**

Further details and explanations of the issues and needs of the buildings and the quantification of the costs and risks are provided in Appendix B. This appendix also provides photographic evidence of the needs and is further supported by Supporting Document 5.25.2 - Clare Photographs.

Development of options

We currently implement a reactive repair approach to these buildings; although, during the current regulatory period, we have not undertaken any significant repairs. We have developed three credible options for managing these issues moving forward. The options range from continuing with a current approach to the full planned refurbishment and upgrade of the buildings.

These options are summarised in the table below, which provides an overview of the scope of each option and qualitative overview its costs and its expected effect on current issues.

Table 7 Overview of logistics pavement options

ID	Option	Scope of option	Comments on option
1	**Business-As-Usual (do nothing)**	Continue with current maintenance and operational regime (ie largely reactive repair as required, with controls as necessary to manage risks associated with the poor condition and compliance issues).	Low maintenance and capex costs in the short term, but no improvement to existing issue risks and costs. Patching costs and/or issue risks and costs would likely worsen as the pavement ages further. This option is considered a short-term solution, requiring higher capex later to fully refurbish the pavement. Note, however, for cost-benefit analysis, we have not assumed that a replacement will occur.
2	**Piecemeal remediation (to defer the need for the more major refurbishment and upgrade)**	Continue with current maintenance regime, but undertake some piecemeal remediation and repair to maintain usage of current site, largely in current form.	Modest capex and ongoing opex, and small reduction in some issue costs and risks. This is assumed to be a short-term solution that will require higher capex later to fully refurbish and upgrade the buildings. For modelling purposes, we have assumed that the pavement will be replaced in 10 years
3	**Major refurbishment and upgrade over next period**	Replacement of the main office building and refurbishment of the toilet facilities, engineering office and workshop.	High capex in short term, but reduced opex and removal of existing issue costs and risks.

Options capital cost estimates

To develop our capital cost estimate for each option, we have:

- assumed the business-as-usual reactive repair cost will be similar to recent historical levels (2015/16 to 2018/19) – note, we have only incurred expensed reactive repair costs over this period
- used the cost estimates prepared by RLB and detailed in our Original Proposal to the AER as the basis of planned replacement and piecemeal remediation cost estimate.

Further details of the methodology and assumptions are provided in Supporting Document 5.25.1 - Clare Building model (confidential).

Table 8 Logistics pavement option capital cost estimates

ID	Option	Capex ($'000)			
		Next regulatory period		Following regulatory periods	
		Reactive	Planned	Reactive	Planned
1	**Business-As-Usual (do nothing)**	-	-	-	-
2	**Piecemeal remediation**	-	$100[b]	-	$836
3	**Major refurbishment and upgrade over next period**	-	$926		

a – for this option reactive costs will continue beyond this regulatory period

b – for this option, we assume a $10,000 uplift in costs allow for the increased cost for the major refurbishment (see further discussion in cost-benefit model)

Impact of options on existing issues and new issues

We have estimated how each option will impact the costs and risks caused by the major issues (Table 9). Key points to note here are:

- for the business-as-usual option, we have assumed that these costs and risks will not increase significantly with time; rather, we are assuming that reactive repair activity will increase, and this will maintain these costs and risks around current level; and

- for the piecemeal remediation option, we are assuming that works in the initial stage can be targeted to remove a greater portion of the cost and risks (see assumptions in the table below).

Table 9 - Summary of impact of options on costs and risks

ID	Option	Existing issues			
		Operational inefficiency	Safety risk	Operational risk	Supply reliability
1	**Business-As-Usual (do nothing)**	Unchanged / worsening	Unchanged / worsening	Unchanged / worsening	Unchanged / worsening
2	**Piecemeal remediation**	Improved (30%)	Improved (50%)	Improved (30%)	Improved (30%)
3	**Replacement over next period**	Avoided	Avoided	Avoided	Avoided

Cost-benefit analysis of options

We have conducted cost-benefit analysis of the three options discussed above. Further details of the cost-benefit analysis model and assumptions are provided in Supporting Document 5.25.1 - Clare Building model (confidential).

The key results of this analysis are summarised in Table 10 below. These results indicate that the major replacement and refurbishment of the buildings in the next period should provide the greatest net benefit. Importantly, implementing that option should realise a net benefit of $0.6 million over continuing in the longer term with a business-as-usual approach of the reactive repair of the buildings.

Table 10 Summary of results of the cost benefit analysis of the building options

ID	Option	Present value ($ million)[a]		
		Option costs	Issue costs and risks	Net benefit
1	**Business-As-Usual (do nothing)**	*0.2*	*1.3*	-
2	**Piecemeal remediation**	0.8	0.3	0.4
3	**Replacement over next period**	1.0	0.0	0.6

a – discounting assumes our proposed pre-tax real WACC of 2.63%

Other important points to note from these results are as follows:

- The net benefit is driven by the avoided costs and risks due to the issues with the pavement area. As such, the majority of the benefit relates to avoiding the operational inefficiencies and supply costs, which constitute 66% and 23% of these costs respectively.
- All options have higher option costs in the long term than the business-as-usual option. These higher costs reduce the overall net-benefit of these options. However, a business-as-usual approach over the long term is most likely an unrealistic solution, given the age and condition of the buildings. Therefore, the costs of this option are likely to be higher if one of the other solutions was required in say 10 to 20 years time (which itself is probably an optimistic estimate).

The main finding that the replacement and refurbishment of these buildings over the next period provides the greatest net benefit tends to be insensitive to key assumptions in the model. Of most note here:

- This result is largely insensitive to increases in the discount rate from the proposed WACC of 2.63% (noting, higher discount rates tend to favour deferring capex). The discount rate would need to increase to approximately 6% before the piecemeal remediation option would be a more economic option, and increase to above 7% before the business-as-usual option was more economic.
- This result is also insensitive to the major replacement and refurbishment cost. This cost would need to need to increase by more than 62% (ie increasing to $1.5 million) before the business-as

usual option would be a more economic option. Obviously, this insensitivity is related to the discount rate. However, even with a discount rate of 4%, the replacement cost would need to increase by more than 30% to approximately $1.23 million before the business-as usual option would be a more economic option.

- Related to the above result on option cost insensitivity, this result is also insensitive to the timing of the replacement (ie there is not a greater net benefit in delaying the replacement by say one year). The current issue costs and risks are valued at $52,921 on average per annum. The benefit of a one-year delay in the capital costs of the major refurbishment option would be approximately $35,343[5], which is significantly less than the benefits of removing the issues.
- Similarly, our estimate of the issue costs and risks could reduce by approximately 45% before there would not be a net benefit in avoiding these costs and risks by the major refurbishment of the buildings.

Based on the above, we consider it reasonable to conclude that the option to undertake a major refurbishment of the buildings over the next period should maximise the net benefits over reasonable ranges for the key assumptions.

[5] Assuming a life of 45 years for the replacement and refurbishments.

3. Our preferred capital program and expenditure forecast

In the previous section, we have explained how we have developed and evaluated our major capital works programs for the next regulatory period. In this section, we summarise our overall preferred option for this location.

This section explains:

- our rationale for selecting the preferred options;
- its overall scope and cost estimate; and
- the main benefits we expect to achieve through implementing this option.

Rationale for selecting the preferred program of capital works for Clare

All forecast works at Clare have been consolidated and treated as two major work components: pavements and buildings. As discussed in the previous section, for these two components we have separately undertaken cost-benefit analysis of a range of short and long-term options, including continuing with our current business as usual practices.

For the preferred option summarise here, we have selected the two options that provided the greatest positive net benefit. We have also shown in the previous section that these options are relatively insensitive to reasonable changes in key assumptions.

The preferred option scope and cost

Based on the above, we have estimated that the forecast capital expenditure at Clare will be $1.55 million over the next regulatory period. The breakdown of this expenditure to the various facilities at that site is shown in Table 11 below, which also indicates the key scope items cover by this forecast.

Table 11 Summary of capex forecast for Clare

Facility	Key scope items	Cost ($ millions)
Logistics pavement	Full pavement replacement, washbays, undercover EWP parking, security service upgrades, truck shelter refurbishment, plus other works	$0.62
Main office building	Rebuild and fit-out, toilet refurbishment, plus other works	$0.80
Engineering office	Replace joinery, air conditioner and floor finish, plus other works	$0.09
Workshop	Replace wall cladding and floor finish, and upgrade lighting	$0.03
Total (may not add up due to rounding)		**$1.55**

The benefits achieved by the preferred option

A key purpose of the capital works in our preferred option is to ensure that the reliability, security and safety of the site does not deteriorate significantly, as the facilities continue to age. If this was to occur, then this would increase operational costs associated with the facility and in turn customer prices. Significant disruptions to the facilities (eg due to a major unexpected issue arising that significantly constrained operations) could also affect the timely delivery of some services (eg connection services) and the reliability of supply to our customer in the Clare valley region and beyond.

That said, the major works components in this forecast involves two significant investments at this site, which should provide significant benefits, providing longer term improvements to the operations and risks associated with those two facilities.

We estimate that in total, the $1.55 million investment in these two facilities will provide an economic benefit in the order of $1.68 million over the longer term (40 years).

Benefit summary

The costs and benefits of the proposed investment over the longer term of 40 years are summarised in the table[6] below:

Clare – Capital cost		
	Major works	**Total ($)**
Capital investment cost	$1.55 m	$1.55 m
Clare – Benefits		
Benefit type	**Description**	**Benefit ($)**
Customer service – PRICE Ie. Benefit in reduced/avoided SA Power Networks costs - capex and opex	• This reduction in our costs is driven by the improved operation costs resulting from these works (which we estimate will provide benefits of approximately **$1.6 million** in the long term); but • This reduction is **offset** by an increase in the capital expenditure to undertake the major works (which we estimate will be approximately **$1.4 million <u>higher</u>** than the business-as-usual option in the long term).	+ $0.2 m
Customer service – QUALITY Ie. benefit in reduced/avoided economic cost of supply reliability	• Additionally, we estimate that the major works reduce risks to the supply reliability we provide to our customers. We have estimated the value of this small improvements to be worth approximately **$0.7 million** over the long term	+ $0.7 m
Safety risks Ie. benefit in reduced/avoided economic cost of deaths and injuries	• Our cost benefit analysis has shown that these works should improve existing safety risks associates with the current state of the relevant facilities at Clare. We estimate that, in total, the **$1.55 million** investment in these facilities will provide long term benefits in reduced safety risks of approximately **$0.8 million** compared to a business-as-usual approach.	+ $0.8 m
	Total NET benefit (relative to BAU)	**+ $1.7 m**

The customer service benefits

Regarding the price of our services, the program should ensure we can continue to provide services that reflect prudent and efficient costs.

Our cost-benefit analysis of the suggests that our long-term costs associated with this facility will be $0.22 million lower, compared to the business-as-usual approach (ie the aggregate present value of our costs over 40 year).

Our analysis suggest that the cost of the preferred options will increase capital costs over the longer term by approximately $1.37 million (assuming we could continue with a business-as-usual very low capex approach for the next 40 years, which is most likely unrealistic). But this increase in capex should be offset by a modest reduction in our operating expenditure of approximately $1.6 million over the same period.

[6] Note – Values quoted within table may contain rounding errors/issues when summing to 1 decimal place.

Furthermore, the small improvements to our supply reliability achieved by these works are valued at approximately $0.71 million over the same period.

Other economic benefits achieved by the program

Regarding other benefits, our program should ensure we can efficiently control safety and environment risks associated with the site.

Our cost benefit analysis has shown that our preferred option should improve existing safety risks associates with the current state of the Clare depot.

We estimate that, in total, the $1.55 million investment will provide long term benefits in reduced safety and environmental risks of approximately $0.75 million compared to a business-as-usual approach.

Comment on the safety risk

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

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 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[7]). 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 above insurance values.

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

4. Regulatory treatment

We have included $1.6 million in the capex forecast in our Revised Proposal to the AER to allow for major refurbishments and upgrades at our Clare depot. We believe that the AER can have confidence that this forecast is in accordance with the NER, given the methodology we have applied to determine the need for this project and its scope and cost.

Given the old age and current condition of this property and its anticipated further ageing over the next regulatory period, we consider that the program's forecast capex is in accordance with the NER capex objectives as it is required to:

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

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, we have applied a rigorous approach to:

- assess the condition of the Clare property and identify and quantify specific issues with that property
- determine the detailed scope of works and costs to address those issues
- undertaken comprehensive cost-benefit analysis on the major works components of the program of works, considering a range of short term and long options, including continuing with a business-as-usual approach.

Importantly, we have engaged various independent experts to assist us in 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 recognize that the forecast at Clare represents a significant increase from recent historical levels at this site. However, as we have demonstrated through our cost-benefit analysis, the major benefits achieved by this investment are reductions in safety risks.

We do consider that the increased investment at this site will result in some improvements to the efficient operation of this property. This should produce benefits in terms of improved productivity associated with this facility and supply reliability to our customers in the Clare Valley region. These benefits have been important considerations in why we believe that this investment is necessary and should result in a net benefit.

However, we consider that these localised improvements at the Clare property (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.

A. Overview of Clare

In this appendix, we provide an overview of the Clare property, including:

- the functional groups and their facilities at this site, and their role in providing services to our customers; and
- the historical development of this site and how we currently maintain this site.

The purpose of appendix is to provide background information on Clare. This understanding is relevant to appreciating the significance of the issues at Clare and the risks and costs driven by these issues, which are discussed in the next section.

Importantly, this appendix explains:

- Clare is a critical site for providing services to our customers in the Clare Valley and beyond and managing our network in this area.
- But Clare is also an aged site that has had limited major redevelopment or refurbishment since its purchase in 1967.

Clare and its role in providing services to our customers

The Clare property is located near the township centre of Clare, which is approximately 145km to the north of the Adelaide.

Clare is one of our regional distribution field service depots, responsible for providing services to our customers and managing our distribution network in the Clare Valley region and beyond.

During working hours, there will be approximately 23 SA Power Networks employees and contractors on site at any time. The engineering and field service crew that work out of this office are responsible for providing our services to all customer in this region (other than major customers connected to our sub-transmission network), including design, construction and commissioning. They are also responsible for the management of our distribution network in this region, ensuring that security and reliability of supply is maintained. Importantly, as part of this network management role, the crews operating out of this depot provide the response, restoration and repair for the distribution fault affecting our network in this region.

Therefore, the effective functioning of this facility is critical to both the price and quality of services to our customers in this region.

The site is approximately 7,200m^2 in size and can be considered in terms of two broad components: buildings and external works. These two components are summarised in the table below and shown on the diagram below.

Table 12 Overview of the main facilities at Clare

Facility	Role and functions
Buildings	There are three main buildings at this site, as follows: 1. An office and administration building, which is a single-story 176 m2 building of brick and corrugated iron roof construction. This building is used for business administration, reception, offices and workstations. 2. The engineering building, which is a single-story 190m^2 building of modular ATCO style construction. This building is used for Field Services Operations and works planning for all field based personnel at the site. This building also includes the kitchen facilities and lunchroom for all site personnel. 3. A workshop building, which is a single-story 440m^2 building of Timber Frame (Jarrah) and corrugated iron clad walls and roof construction. This building is the main workshop for our engineering and field crews, and is used to maintain, repair and refurbish network assets, where this is not feasible in the field and storage and warehousing of spares, tools, line hardware, switching equipment and cables/conductor.
Pavement and external works	A large portion of the site is the outdoor area. This represents approximately 77% of the site, consisting mainly of a bitumen/asphalt pavement and concrete spoon drains for stormwater. The pavement area includes 1. Carparking for site staff and visitors 2. Various parking locations for specialist crew vehicles, including an undercover truck shelter 3. Various storage areas for networks assets and equipment 4. Internal roadway. The external works also include other facilities such as site fencing and other security features.

31	Clare - 14 Lennon Street
31A	Office Building
31B	Engineering Office / Lunchroom Building
31C	Workshop
31D	Truck Shelter
31E	External Works

Figure 1 Diagram of Clare showing the main facilities.

The historical development of Clare

The Clare site was originally established in 1967 and has always functioned in its current role.

To a large degree, much the original buildings and pavement areas remain as those established around the time that the original site was developed. There have been a few notable developments at the site since that time:

- Pavement Repairs
- Concrete Hardstand and Racking
- Fencing upgrade to the rear of the yard
- Engineering Modular building

Clare recent expenditure and refurbishment activity

There has been no significant refurbishment or upgrade of the facilities at this site. During the current regulatory period, there have been no capital works performed at this site. Importantly, however, as we will explain in the following section, the lack of refurbishment and upgrade is not due to a lack of significant issues with the site. Rather it is because it has been our intention to upgrade this site for some time. However, this requirement has been delayed while we evaluated the best option, including moving to a new site (which was the local council's preference).

With regard to maintenance expenditure, over the current period we spend on average $9,887 (real $June, 2020) per annum on reactive maintenance across the site. This is typically minor expenditure to fix defects found at the site (eg repairing plumbing, air conditioning, doors, buildings, security systems, fire systems, and our electrical systems, etc). The annual profile of this expenditure is shown in the figure below, indicating the spend associated with the various facilities discussed above. This chart indicates that reactive maintenance expenditure at this site has been rising recently, with reactive maintenance expenditure just over $16,000 in 2017/18.

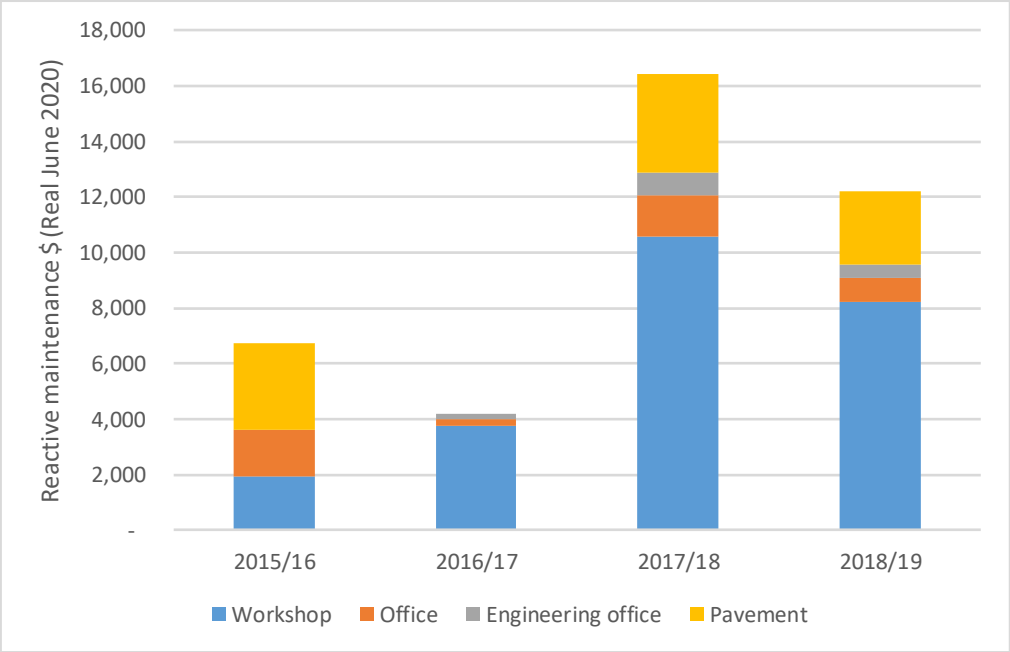

Figure 2 Profile of recent reactive maintenance by facility

B. The existing issues at Clare

In this appendix, we summarise the current issues with the Clare property, including:

- the facilities and locations affected and causes of the issues (eg age, condition, compliance, etc); and
- the implications that these issues have on the risks and operational costs associated with this property.

Importantly, this appendix explains that the site can be classified into two components, where we consider that the issues are so significant that major replacement and refurbishment projects may be necessary to provide long term solutions to the issues:

- the **pavement** area (and associated external works), which has had increasing areas of poor condition, a sub-optimal layout for our current operations, and drainage issues; and
- the **main staff buildings**, which are largely in their original state since we purchased the depot in 1967 resulting in a range of issues that we are currently managing.

These issues are impacting safety risks, operational costs, and supply reliability.

This appendix provides photographic evidence of the main issues and is supported by Supporting Document 5.25.2 - Clare Photographs, which provide more comprehensive photographic evidence.

Assessment methodology

We continually inspect and assess our properties. The issues discussed in this section have been developed from our own inspection processes and the inspections undertaken by RLB, which was discussed in our Original Proposal.

Clare pavement and associated external works

Context

As noted in the Appendix A, the pavement covers a large area (approximately 5,600 m^2), which is used for various functions associated with the depots roles. Figure 3 below provides a diagram of the site, indicating the logistics pavement and key features of this pavement, including:

- various parking locations, including
    - carparking for site staff and visitors
    - an undercover truck shelter, which is used to park the vehicles that we use to undertake repairs to the network including barehand and live line restoration work
    - an exposed parking location for specialist crew vehicles, such as our elevated work platforms
- various storage areas for networks assets and equipment, including conductors, cables, switching equipment and smaller network spares.

Figure 3 Diagram of poor condition pavement areas and general heavy vehicle flow paths at the site

Figure 4 Diagram of poor condition pavement areas and general heavy vehicle flow paths at the site

Figure 3 shows the typical traffic flows around the paved area. Importantly, during working hours there will typically be numerous vehicles entering and leaving this area, personnel working on foot within these areas, pedestrians moving between the admin building and workshop and other personnel moving material using forklift vehicles, as shown in Figure 4.

Major issues with the pavement

The poor condition of the existing pavement

The current pavement was original constructed in 1967. Since that time the volume and weight of the vehicles using the facility has increased. Because of the age of the pavement and its heavy use, there has been an increasing volume and severity of areas of the pavement with significantly degraded condition. There are also significant drainage issues at the site and the paved areas accommodate council stormwater run-off from adjacent properties and the roadways to the North. The local Council is aware of this problem but have limited repair options due to drainage in Clare council region as a whole. This has meant ongoing soakage and waterlogging to pavements increasing its rate of degradation.

Historically, we have been repairing the worst affected areas through a piecemeal reactive repair program. However, as was discussed in the previous section, we have not undertaken significant repair work in the current period, as it has been the intention to replace the pavement.

The poor condition of the pavement develops in various ways depending on the pavement material and its use.

Concrete areas are typically laid in block-like tile sections, with a filling material between the blocks. The surface of the blocks can degrade and wear, producing areas of sunken and uneven surface, or significant

cracks can form. Alternatively, the joining edges of the blocks can get worn, chipped or the block can subside, such that an uneven step-change occurs between blocks.

The bitumen areas have similar issues with degradation and wear causing potholes and areas of sunken or uneven surface. The bitumen areas can also be affected during times of the extremely high temperature where the weight of the heavy vehicles, particularly at turning points, can cause ruts and uneven surfaces to form. Further, some of our heavy moveable storage and bins can leave deep spot indentations when left on bitumen for extended periods.

Importantly, because of its age and the historical degradation we have seen over the last 15 years, we are expecting further areas to degrade over the short term (ie we anticipating an ongoing need to repair the pavement if we continue with a business-as-usual reactive repair strategy).

The existing layout and traffic flow arrangements of the site

The overall development of the site since its establishment, particularly the number and types of vehicles that now use the site, now means that the existing layout is not ideal and optimal and creates a number of issues with the functioning of the site.

The most significant issue with layout and traffic flow is associated with the main driveway entrance to the site and the interaction between heavy and light vehicles and pedestrians. The two way traffic flow and narrow driveway between the two existing buildings creates a bit of a pinch point as shown above.

Height clearance limitations

The height clearances in various locations within the site are limiting for our more modern vehicles, particularly the larger vehicles delivering to and from the site and our field crews EWP vehicles. This causes some safety risks associated with vehicle movements around the site and constrains our operations.

The most significant issues that are associated with height is in relation to the height of the truck shelter. The original skillion roof style is not high enough to accommodate the height of SA Power Networks' modern EWP fleet. In addition to this the height of the roof beams in the workshop/store prevent maximum use of available storage and racking space that could be better utilised.

Sub-optimal storage

Hard Stand Storage areas are in poor condition and accessing these areas via damaged pavements presents a risk for forklift movements, as shown in Figure 6. There is also a slope to the rear of the site adding further complexity to moving forklifts with suspended loads.

Parking limitation and council concerns

There is insufficient vehicle parking for staff and commercial vehicles on site. Currently, 8-10 staff park off site.

The location of the site is in an expanding residential area, and therefore, parking off-site can cause issues both to our staff (to find parking) and issues with the local community. Since 1997, the local council has raised concerns with us on the location of this facility, including its impact on the local community and the traffic management issues this causes.

The council's preference is for us to relocate the facility to an industrial zone within the Clare township. This is currently not a feasible option for SA Power Networks due to the cost of relocating and either building a new facility or refurbishing a partially complete site elsewhere.

Example photographic evidence of pavement issues

Example photographic evidence of the major issues with the pavement is shown below. More comprehensive photographic evidence is provided in Supporting Document 5.25.2 - Clare Photographs.

Figure 5 Examples of large areas of bitumen to the rear of the yard and heavy vehicle driveways in very poor condition with full-thickness cracking, potholing and subsidence.

Figure 6 Examples of large areas of bitumen to the rear of the yard and heavy vehicle driveways in very poor condition.

Figure 7 Examples of full-thickness cracking and breakdown of concrete drain and heavy vehicle driveway

Figure 8 Broken and degraded pavements to the loading areas of the rear side of the truck store.

Figure 9 Current truck store from can only accommodate half the length of an EWP vehicle and other trucks

Impact of issues on operational costs and risks

The poor condition of the pavement and its layout results in a range of increased costs and risks associated with our operations at Clare.

The table below summarises the most significant costs and risks we have identified and provides our estimated value for these costs and risks. Further details of the methodology, assumptions and basis for these estimates is provided in Supporting Document 5.25.3 - Clare Pavement model (confidential).

In total, we estimate that the main costs and risks associated with the poor condition of the pavement is currently approximately $62,147 per annum, with a major component of this due to safety risks[8].

Importantly, given the age of the pavement and its recent history of degraded condition, we expect these issues to worsen if we continue for any extended period with our recent approach of undertaking no significant reactive repair. This will either increase the need for reactive repair to maintain the costs and risks at around current levels, or these costs and risks will increase if do not undertake repairs.

[8] It is worth noting that although this safety risk is high in relative terms to other risks at this site, it is only classified as a low to medium risk in our corporate risk scale. Therefore, it is not a specific risk being monitored and controlled through the corporate risk management protocols.

Note, the table below only details the incremental costs and risks resulting from the issues, which we consider would not arise if the issue did not exist. It does not detail all costs and risks for this facility.

Table 13 Summary of the major costs and risks due to the issues with the pavement

Cost/risk category	Description	Expected annual value ($)
Safety risks	Accident in pavement area caused by the areas of poor condition and/or layout resulting in a fatality or injury.	$24,437
Operational risks	An unexpected and rapidly evolving patch of poor condition occurring that significantly affects the operations on the pavement until it is repaired.	$3,000
Operational inefficiency	Increased costs associated with: • operating on the pavement in areas of poor condition or at time of implementing a reactive repair (ie initiation and application of temporary workaround arrangements or other constraints on usual practices) • longer operating times and other constraints due to existing sub-optimal layout. Note, this include the risk controls that are necessary to ensure that events associated with the safety risk are should have a very low likelihood.	$17,490
Supply reliability	The economic value (via VCR type calculation) of the increased fault response and restoration times due to the poor condition and layout of the pavement.	$13,759
	The economic value (via VCR type calculation) of the increased fault response and restoration times due an unexpected and rapidly evolving patch of poor condition occurring that significantly affects the operations of the depot until it is repaired.	$3,010

Other issues with the pavement

In addition to the poor condition and layout of the pavement, there are also a number of other more minor issues with the external structures and fixtures associated with the pavement area. These issues do not drive the need to replace the pavement, but some will be able to be addressed opportunistically if the pavement is undergoing a major planned replacement. Otherwise, these issues would be addressed either through the reactive maintenance program, or more likely minor works in the capital works program.

The table below lists the most notable issues, providing a brief explanation of each issue and how it affects costs and risks (note, for these more minor issues, we have not tried to quantify the costs and risks).

Table 14 Summary of minor issues with logistics pavement

Issue	Explanation of issue	Impact on operational costs and risks
Security services	The existing beams and cameras (old analog video cameras) have been assessed to be inadequate resulting in break-ins to the facility.	This increases the possibility that there could be either theft or damage of site equipment, with the resultant additional costs to our business associated with that event.

Elevated Work Platform (EWP) parking	There is a lack of undercover parking for the EWP vehicles.	We currently have 8 EWP vehicles parked at this location. These are expensive vehicles; for example, we have large EWP vehicles required by our field crew, which are valued at up to $500,000 each. The current arrangements expose these vehicles to weather (eg high UV, rain and hail). This can accelerate their ageing, increasing maintenance costs and reducing their effective lives. It is also worth noting that historically, we had undercover parking at the site. However, this had to be dismantled because the newer EWP vehicles were too high for the structure.
Wash bays	There are no wash bays at this site.	In regional SA there is a Biosecurity SA obligation for SA Power Networks to keep its operational vehicles clean and free of weeds and plant and animal pathogens. SA Power Networks represents a major vector for spreading such pathogens due to the nature of the works performed and driving large equipment into agricultural paddocks and livestock areas for supply maintenance and restoration.
Truck shelter	Poor condition and inadequate design for current vehicles The truck shelter was constructed around 1967 and is in poor condition and is an inadequate design for the types of vehicle now used on site.	The current arrangements expose these vehicles to weather (eg high UV, rain and hail). This can accelerate their ageing, increasing maintenance costs and reducing their effective lives. It is also worth noting that historically, we had undercover parking at the site. However, this had to be dismantled because the newer EWP vehicles were too high for the structure.

Clare building issues

Context

The Clare site includes three main buildings:

- the main office and administration building
- the engineering office
- the workshop.

All these building, including their non-structural elements, including fixture and fitting are aged resulting in a range of issues that we are currently managing. Individually, many of these issues are not major, but together they represent a major issue.

The three buildings and their issues are discussed separately below.

The main office and administration building issues

The main office and administration building was constructed around 1967. It was built of brick and corrugated iron roof construction using materials and techniques appropriate for that time. The building contains office facilities and toilet facilities (including a shower and changing rooms). The building and its fit-out remains largely as constructed.

The building has been known for some time to be in a poor condition with aged facilities, and not fit-for-purpose in the long term. Because it has been our intention to decommission this building for some time, it has received very repair or refurbishment recently.

The main building issues associated with its condition and compliance with current obligations are summarized in the two tables below.

Table 15 - Summary of issues with the office building

Issue	Explanation of issue
Office building layout	Original office constructed in 1967 and not suited to current employee numbers at the site and collaborative working environment. Many segregated work areas and closed off rooms. SA Power Networks modern work practices better align to open plan working environments.
Location of the building	Location and current alignment of the building limits available light vehicle parking and creates a very narrow main driveway between the front of the site and the rear operational yard.
Age and fit-out	No major re-fits or refurbishments have been undertaken on this building since 1967. In particular the toilets and showers are in poor condition and the office floor contains asbestos floor tiles. There has also been several termite infestations in the internal timber structure that have been detected and treated in the past.

Example photographic evidence of the major issues with the main office building is shown below.

Figure 10 Male and female toilet and showers showing original aged fit-out and poor condition

Figure 11 Administration building showing aged internal fit-out as per original, and signage indicating asbestos floor tiles

The engineering office issues

The engineering office was constructed in 2003. It was built of modular ATCO style construction using materials and techniques appropriate for that time. The building house technical office staff and is the lunchroom for site staff. Structurally, the building remains as constructed.

The main structural and non-structural elements of this building are still acceptable. However, there are a number of minor issues with the condition of fixtures and fittings, however, the main issue is associated the air conditioning system due to its age/condition.

Table 16 - Summary of issues with the engineering office building

Issue	Explanation of issue
Air conditioner	Age/condition The system has passed its design life and is considered to be in its end-of-life phase. Also, because of it vintage, it is considered to less efficient that modern systems.

The workshop issues

The workshop was constructed in 1967. It was built of Jarrah timber columns, trusses and rafters and iron clad roof and walls using materials and techniques appropriate for that time. The building contains storage of various materials including plant and tools, networks spares and equipment including cable conductor.

Structurally, the building remains as constructed. There have been no major repairs or refurbishments to this building other than some minor lighting upgrades in 2017.

The main structural and non-structural elements of this building are still acceptable. However, there are a number of issues with the condition and compliance of fixtures and fittings and engineering systems. The main issues associated the buildings are summarized in the table below.

Table 17 - Summary of issues with the workshop

Issue	Explanation of issue
Timber frame	Whilst constructed of very large hardwood Jarrah members, the columns and trusses are showing signs of decay and cracking and have been cut into previously for shelving. The height of these beams also restricts the amount storage and racking space and forklifts have also knocked the columns in several locations.
Wall cladding	Original 1960's corrugated iron sheets (painted). Starting to show signs of corrosion.
Lighting	Remaining lighting requires upgrading to more compliant and energy efficient fittings.

Example photographic evidence of the workshop building is shown below.

Figure 12 Workshop Building showing old circa 1967 design and construction

Figure 13 Inside the workshop building, showing the aged working arrangements including original Jarrah columns and trusses starting to show signs of cracking, height restrictions to operations and lack of effective insulation

Impact of issues on operational costs and risks

The poor condition and ageing facilities with these three buildings result in a range of increased costs and risks associated with our operations at Clare.

The table below summarises the most significant costs and risks we have identified and provides our estimated value for these costs and risks. Further details of the methodology, assumptions and basis for these estimates is provided in Supporting Document 5.25.1 - Clare Building model (confidential).

In total, we estimate that the value of the main costs and risks associated with these issues is currently approximately $52,921 per annum, with the major components of this value being operational inefficiencies and risks[9].

Importantly, given the age of these buildings and their recent history of degraded condition, we expect these issues to worsen if we continue for any extended period with our recent approach of undertaking no significant reactive repair. This will either increase the need for reactive repair to maintain the costs and risks at around current levels, or these costs and risks will increase if we do not undertake repairs and improvements.

[9] It is worth noting that although this safety risk is high in relative terms to other risks at this site, it is only classified as a low to medium risk in our corporate risk scale. Therefore, it is not a specific risk being monitored and controlled through the corporate risk management protocols.

Note, the table below only details the incremental costs and risks resulting from the issues, which we consider would not arise if the issue did not exist. It does not detail all costs and risks for this facility.

Table 18 Summary of the major costs and risks due to the issues with the pavement

Cost/risk category	Description	Expected annual value ($)
Safety risks	Accident in a building caused by its poor condition and/or compliance resulting in a fatality or injury.	$6,000
Operational risks	An unexpected and rapidly evolving poor condition issue occurring that significantly affects the operations in one of the buildings until it is repaired.	$5,000
Operational inefficiency	Increased costs associated with longer operating times and other constraints (ie poorer productivity) due to the existing poor condition of the facilities.	$5,980
	The continuing poor condition of the buildings resulting in low morale and with an expected higher rate of staff turn-over, resulting in increased hiring and training costs.	$23,900
Supply reliability	The economic value (via VCR type calculation) of the increased fault response and restoration times due an unexpected and rapidly evolving poor condition issue occurring that significantly affects the operations in one of the buildings until it is repaired.	$12,041