



# Burwood depot replacement

UE RRP BUS 8.01 – Burwood depot  
replacement – Dec 2020

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**Revised regulatory proposal 2021–2026**

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# 1 Overview

Business	United Energy
Title	Burwood depot replacement
Project ID	UE RRP BUS 8.01 - Burwood depot replacement - Dec 2020 - Confidential
Category	Other non-network capex
Identified need	<div></div> <div>necessitating construction of a new purpose-built depot to service the northern section of our distribution network.</div>
Recommended option	Option 2: Construction of a new purpose-built depot on a brownfield site
Proposed start date	Q1 2022
Supporting documents	UE RRP ATT40 – Burwood depot - Dec2020 - Confidential UE RRP ATT51 – B2B – Burwood project and construction management budget estimate – Oct2020 – Confidential UE RRP ATT52 - Victorian Government - Media release on Suburban Rail Loop - Nov2020 - Public UE RRP MOD 8.01 - Other non-network capex - Dec 2020 - Public UE RRP MOD 8.04 - UE depots benefits model - Dec2020 – Public

The aim of this document is to provide detail of the drivers of change behind our amended revised proposal and to show we have developed prudent and efficient forecasts over the 2021-2026 regulatory period.

We have revised our proposal for our Burwood depot. We will now construct a new depot on a brownfield site rather than redevelop the existing site.

This necessitates construction of a new, purpose-built, depot on an alternative site to service the northern section of our distribution network.

Our Burwood depot is our key operational depot. It services the northern section of our distribution network, houses 160 operational employees and holds the backup control room for emergency and disaster recovery situations. Our Burwood depot is also our largest depot responsible for the largest number of maintenance and unplanned outage work. Failure to replace our Burwood depot would have significant adverse impacts on our network wide operating model, including poorer network reliability, and result in increased costs for customers.

The revised proposal updates our previous analysis to:

- consider new options relevant to the need to vacate the existing Burwood depot site
- respond to the concerns raised by the AER and EMCA in relation to our benefits assumptions.

Through an initial market scan, we have found that the development of the new depot on a brownfield site is the most realistic option given the scarcity of suitable vacant parcels of land within Burwood and surrounding areas.

We consider our revised expenditure forecast to replace the Burwood depot to be prudent and efficient. A summary of our forecast expenditure requirement is shown in Table 1. Our forecast expenditure is based on updated independent cost quotes and supported by revised benefits modelling.

Table 1: Revised proposal, Burwood depot replacement on brownfield site, \$m 2021, direct cost

	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Capital expenditure	18.0	13.6				31.6

# 2 Background

## 2.1 Our original proposal

We originally proposed to upgrade our existing Burwood depot to ensure we could continue to deliver a reliable network at an efficient cost and ensure we were continuing to comply with our regulatory obligations.

Our originally proposed works were significant as the buildings at the Burwood site were constructed in the 1980s and has had no major capital improvements undertaken since that time. As a result, the Burwood depot has deteriorated, suffers from legacy maintenance requirement and does not maximise storage space for a large amount of materials. Originally our proposed approach was to redevelop the site with construction of new warehousing, hardstand and office facilities.

We had also identified that work was required to adapt part of the site previously used by MultiNet Gas to make it fit-for-purpose for United Energy and to ensure efficient and safe traffic flow. Without additional investment, these constraints would have impacted network reliability and the health and safety of our employees. It would also have over the longer-term increased costs for our customers.

We also submitted a report by McKenzie group, refer UE ATT065, which sets out the extent of work which would be required to bring the Burwood depot to compliance with current building standards.

Following our original proposal, and upon request from the AER, we quantitatively estimated the benefits of various options for addressing issues with the Burwood depot. Benefits included mitigating the following adverse impacts:

- delays in connections
- longer outage times
- deteriorating workforce productivity
- increasing safety risks, including potential loss of life
- direct costs associated with offsite resources.

The adverse impacts result from insufficient depot capacity, inadequate materials stores, structural issues with buildings, unstable surfaces, insufficient cover for operational vehicles and outdated facilities.

Our assessment of the relative costs and benefits of different options showed our proposed upgrade to the existing Burwood depot was the preferred option. We also presented sensitivity analysis which demonstrated upgrading the existing depot would remain the preferred option even if all our estimated benefits were reduced by 20 per cent.

## 2.2 Draft determination

The draft determination substituted our upgrades to the Burwood depot with a lower cost minimum spend alternative. EMCA determined the minimum spend alternative to be more efficient based on substituting assumptions in our benefits model with their own. EMCA noted the following concerns with our benefits assumptions:

- overstated and unsupported fatality risk assumptions
- unsupported and double-counted productivity gains
- reduced customer unserved energy costs are not supported by evidence.

EMCA's alternative approach was to amend our assumptions as follows:

- halve the impacts on connections and network reliability associated with inadequate depot capacity

- remove the impacts of reduced field productivity and network reliability associated with inadequate storage based on 'possible duplication of the additional cost of storing materials offsite'
- reduced the probability of death or serious injury occurring from 1/100 years to 1/1,000 years in relation to each of the following safety risks structural issues, unstable surfaces and improper storage of operational vehicles used for live line works
- increased the productivity benefits associated with the minimum spend alternative option.

EMCa provided no evidence in support of the reasonableness of its alternative assumptions.

The draft determination accepted the proposed timing for our Burwood depot works<sup>1</sup>, which were 2021/22 and 2022/23. However, the draft determination revenue allowance was calculated based on alternate timing being the final year of the next regulatory period, 2025/26.

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<sup>1</sup> AER draft decision, United Energy Distribution Determination 2021 to 2026, attachment 5 capital expenditure, September 2020, page 5-62.

# 3 Revised proposal

## 3.1 Identified need

The identified need for our proposed Burwood depot replacement is to maintain efficient service and reliable supply of electricity to customers in the northern area of our network following the closure of our Burwood depot.

Our Burwood depot is our key operational depot in our network. The Burwood depot currently services the northern section of our distribution network, houses 160 operational employees and holds the backup control room for emergency and disaster recovery situations. Our Burwood depot is also our largest depot having responsibility for the largest amount of maintenance and unplanned outages work.

[REDACTED]

[REDACTED]

[REDACTED] it is critical we replace our Burwood depot to allow us to continue operating effectively and efficiently across our network and maintaining our reliability standards. Failure to replace our Burwood depot would have significant adverse impacts on network reliability and increase costs for our customers.



### 3.2 Summary of our revised proposal

We have revised our proposal to replace our Burwood depot with a new depot at an alternative site. We are proposing to redevelop the depot on a brownfield site, as based on an initial market scan that is expected to be the most likely option in finding a parcel of land close to our original Burwood depot.

[REDACTED]

[REDACTED] The future state depot servicing areas have been set to maintain average travel times for field crew and therefore maintain supply reliability and field productivity across the network. Under the future state approximately 13 per cent of customers would be serviced from the Keysborough rather than Burwood depot. The figures below also illustrates the change in works being conducted out of each depot following the relocation of the Burwood depot [REDACTED]. Currently, Burwood is our key depot and is responsible for approximately 33,303 jobs per annum. Once we have relocated [REDACTED], it is expected that the number of jobs run out of our [REDACTED] depot will be 29,278. The remaining 4,025 jobs will be picked up by our expanded Keysborough depot. The rebalancing of works is necessary as an initial market scan suggests any [REDACTED] replacement depot will not be as large as our existing Burwood depot and hence unable to carry the exact operational requirements Burwood did. Consequently, approximately 13 per cent of field and office workers would be relocated from Burwood to Keysborough.

Relocating our depot [REDACTED] whilst expanding the Keysborough depot allows us to continue servicing our network effectively and efficiency as we do today. By maintaining current average travel times under the future network footprint, we can maintain current average reliability of the network as well maintain current levels of field worker productivity.

It is critical we replace our Burwood depot in an efficient and timely manner to ensure we continue to effectively service the northern section of our network. Failure to replace the Burwood depot would lead to increased travel times and consequently poorer network reliability and increased costs. This is demonstrated in our Burwood depot replacement benefits model option 0 – do nothing.

For our revised proposal we have updated our analysis to:

- consider new options relevant to the need to vacate the existing Burwood depot site
- respond to the concerns raised by AER and EMCA in relation to our benefits assumptions.

The table below provides a summary of our original proposal, the draft determination and our revised proposal to replace our Burwood depot on a brownfield site.

Table 2: Property capital expenditure, \$m 2021, direct cost

	Original proposal	Draft determination	Revised proposal
Capital expenditure	31.0	13.4	31.6

### 3.3 Options analysis

We have investigated three options for our revised proposal, which include:

- Option 0 - do not replace the Burwood depot
- Option 1 - develop a replacement depot on a greenfield site
- Option 2 - develop a replacement depot on a brownfield site

Notably, the minimum spend option is no longer viable given the need to vacate the Burwood depot site.

The table below provides a summary of the options, in terms of costs over the 2021-2026 period and the net present value of each option taking into account the costs and benefits over a 25 year period. The analysis demonstrates option 1 is the lowest cost solution for customers. However, it is very unlikely we will obtain a greenfield site of the size, and in the geographical location, required to minimise any adverse impacts on our network operating model. For this reason, option 2 was found to be the most realistic option while being only marginally more costly for customers than option 1.

Table 3: Options analysis, \$m 2021, direct cost

Option	Description	Cost 2021-2026	Net present cost 25 years
0	Do not replace the Burwood depot	-	87.7
1	Development of a new depot on a greenfield site	30.1	33.1
2	Development of a new depot on a brownfield site	31.6	34.6

Source: United Energy

Note: Costs of options 1 and 2 exclude acquisition of land

The following sections describe each option and the relevant advantages and disadvantages.

### 3.3.1 Option 0

Option 0 involves not replacing our Burwood depot. Consequently, our field crew, fleet and material stores would need to relocate to our depot at Keysborough. This would result in no resources being available in the northern section of our network. This option is not practically feasible as there is insufficient land and depot space at these depots to accommodate increased fleet, materials, office staff and field crew displaced from the Burwood depot, even after the proposed Keysborough upgrades. We have nevertheless assumed this is the case for the purposes of modelling option 0.

The table below describes the advantages and disadvantages of option 0.

Table 4: Option 0 - do not replace Burwood depot

Advantages	Disadvantages
Lower capital costs in the short term by not building a new depot	Worsening network reliability as response times decline due to longer travel times for field crew from other depots. Average travel times per job are expected to increase from 17 minutes to approximately 28 minutes. Given average unplanned outage duration of 72 minutes, an 11 minute increase in travel times would lead to a 15 per cent slower response to unplanned outages.
	Higher costs for customers resulting from increased labour and fleet costs from longer travel times to network assets in northern area. Average travel times per job are expected to increase from 17 minutes to approximately 28 minutes. Given field workers currently travel on average 75 minutes per day, the daily travel time would increase to 123 mins resulting in a 11 per cent loss in productivity. The lost productivity will also lead to corresponding delays in new connections.
	Overcrowding of Keysborough depot leading to: <ul style="list-style-type: none"> <li>• higher risk of safety incidents, involving personnel, vehicles and materials</li> <li>• reduced productivity and poorer network reliability</li> </ul>
	Additional costs to accommodate the relocation of resources (employees, fleet and materials) displaced from Burwood to Keysborough depot. Noting expansion of the scale necessary to accommodate displaced Burwood resources at Keysborough is extremely limited due to the land size and lack of available space at the depot, even after the proposed site upgrade.

### 3.3.2 Option 1

Option 1 consists of purchasing a vacant site and constructing a new operational depot. Under this option resources, including fleet, materials and office staff and field crew, would be relocated from our Burwood depot to the new depot by the end of 2022.

This assumption is based on an initial market scan of available vacant land within the northern area of the network.

The table below describes the advantages and disadvantages of option 1.

Table 5: Option 1 - Develop new depot on greenfield site

Advantages	Disadvantages
<p>Allows for the construction of a purpose-built operational depot which meets our resourcing needs to effectively service customers in the northern part of the network, including:</p> <ul style="list-style-type: none"> <li>adequate space for storing materials</li> <li>appropriate layout for manoeuvring fleet</li> <li>sufficient space for storing fleet undercover</li> <li>accommodate workforce diversity</li> <li>provide suitable accommodation for office and field employees which meet today's health and safety standards</li> <li>sufficient space and resources for office and field employees to work productively</li> <li>buildings will meet today's building standards minimising safety risks</li> </ul>	<p>Costs incurred for the acquisition of land and a ground up depot build (noting our proposed expenditure forecasts are exclusive of land purchase costs)</p>
<p>Low maintenance costs associated with new buildings and parking spaces</p>	<p>Limited supply of suitable sites will make acquisition difficult and may require paying a premium above market or accepting a less than optimal location which would detrimentally impact reliability and increase travel costs</p>

Source: United Energy

### 3.3.3 Option 2

Option 2 consists of purchasing a brownfield site, with existing commercial or industrial buildings, and redeveloping it into an operational depot. Under this option resources, including fleet, materials and office staff and field crew, would be relocated from our Burwood depot to the new depot by the end of 2022.

An initial market scan identified a scarcity of sites with suitable reusable facilities within Burwood and the surrounding areas. The market scan has identified the most probable scenario is acquisition of a brownfield site [REDACTED]. Under a brownfield scenario we would not expect to be able to reuse any significant infrastructure.

In this option analysis, we assumed access to a brownfield site [REDACTED] – to ensure comparability of the benefits analysis with option 1.

The table below provides the advantages and disadvantages of option 2.

Table 6: Option 2 - Develop new depot on Brownfield site

Advantages	Disadvantages
Most likely option to find a site within proximity to our Burwood depot thus minimising adverse impacts to how we service our northern patch	Development may be somewhat constrained by the existing buildings and site configuration.
<p>Allows for the redevelopment of a depot which meets our resourcing needs to effectively service customers in the northern part of the network, including:</p> <ul style="list-style-type: none"> <li>adequate space for storing materials</li> <li>appropriate layout for manoeuvring fleet</li> <li>sufficient space for storing fleet undercover</li> <li>accommodate workforce diversity</li> <li>provide suitable accommodation for office and field employees which meet today's health and safety standards</li> <li>sufficient space and resources for office and field employees to work productively</li> <li>buildings will meet today's building standards minimising safety risks</li> </ul>	<p>More time required to inspect building structures and demolish existing buildings and time to plan layout to accommodate existing structure if possible</p> <p>Higher construction costs due to potential need to inspect and demolish existing buildings</p> <p>An initial market scan identified a scarcity of supply of parcels of land at the suitable size we are looking for in the preferred geographical location</p>

Source: United Energy

### 3.4 Response to draft determination

The draft determination substitutes our proposed upgrade of the Burwood depot with a minimum spend alternative based on EMCa's substitute assumptions in our benefits model resulting in the minimum spend option being lowest cost.

The table below sets out response to each of the EMCa substitute assumptions.

Table 7: Our response to EMCa

Original proposal assumption	EMCa substitute assumption	Our response
Failure to upgrade the depot to address inadequate depot size/capacity would lead to 2% increase in outages times	Halved assumption to 1%. No reason given.	Our 2 per cent reduction in outage times is equivalent to a saving of approximately 1 minute and 25 seconds in the average outage duration. It is not unreasonable for capacity constraints leading to poor foot and vehicle traffic flow within a depot to contribute to a 1 minute and 25 second delay in crews exiting the depot. EMCa has provided no evidence as to why this estimated delay should be reduced by 50%, which would imply a 43 second delay in exiting the depot.
Failure to upgrade the depot to address inadequate storage would increase outage times by 2%	Removed assumption on basis there was already an impact on reliability from inadequate depot capacity	<p>These items are not double counted.</p> <p>While inadequate capacity and storage are both likely to occur at the same time, the impacts are separate</p> <p>In relation to reliability of supply, inadequate depot capacity is expected to routinely affect outage restoration times, as it causes slower mobilisation of crew.</p> <p>The lack of materials storage however becomes more of an issue during emergency response events when there is a need to access more or different materials than usual. Inadequate materials stores will add to the logistical challenges and resourcing pressure during emergency response.</p> <p>As noted above our 2 per cent reduction in outage times is equivalent to a 1 minute and 25 second delay in access materials. This is a very conservative estimate.</p>
Failure to upgrade the depot to address inadequate storage would reduce field worker productivity by 1.5%	Removed assumption on basis there was already a cost of sourcing materials off-site	<p>These items are not double counted.</p> <p>Productivity losses that result from inadequate storage arise from the difficulty of accessing materials efficiently within the depot.</p> <p>Whereas the costs of sourcing materials offsite relate to the costs of materials being stored in different locations.</p>
Failure to upgrade the depot could lead to death or serious injury 1/100 years due to structural failures	Replaced probability of death or serious injury to 1/1000 years (by applying a 10% probability to our 1% probability) on the basis not every major incident will result in death	<p>EMCa's approach applies the probability of consequence twice.</p> <p>While it is correct that the probability of risk can be broken down into two components (probability an event occurs</p>



Failure to upgrade the depot could lead to death or serious injury 1/100 years due to unstable surfaces	Replaced probability of death or serious injury to 1/1000 years on the basis not every major incident will result in death	and probability it has serious consequence), the probability estimates that we adopted combined these elements.
Failure to upgrade the depot could lead to death or serious injury 1/100 years due to poor storage of operational vehicles used for glove and barrier work	Replaced probability of death or serious injury to 1/1000 years on the basis not every major incident will result in death	Further, EMCa's reduction in the probability of an incident occurring that has serious consequence from 1/100 to 1/1000 is inconsistent with the extent of issues identified at the depot, as described in the McKenzie Group report. Adopting a 1/1000-year probability cannot be considered prudent. We operate in a high-risk industry, as an example an incident involving a forklift truck operating on unstable ground will always involve personnel and therefore carries a significant risk of injury or fatality.
Costs to clean up minor structural failure \$75K escalating at 2.5% per annum	Applied a 50% reduction on basis need to include a probability of failure	
Minimum spend option would mitigate productivity detriments by 1% compared with the do-nothing option, this marginal improvement is expected to arise through addressing the lack of female facilities.	Increased this assumption to 2.5%, removing half the productivity detriments of do nothing	EMCa's assumption is unrealistic. The minimum spend option is only intended to address immediate compliance related issues and provide female facilities. It does not address the fundamental issue of outdated and poorly laid out depots.
Failure to upgrade the depot to address inadequate depot size/capacity would lead to a delay in connections by 1 day 10% of the time	Halved assumption to 5%. No reason given.	Our assumption is equivalent to undertaking 1 additional connection per day, in the context of currently providing around 15 per workday, approximately 2 per hour. Therefore, our assumption seems reasonable. EMCa has provided no rationale for halving the assumption. Nevertheless, we have applied EMCa's assumption in our revised proposal.

More generally we note:

- given the indirect relationship between the condition of depot facilities and safety, reliability and productivity outcomes, it is unrealistic to presume a level of precision in the assumptions made. Our assumptions were based on our understanding of the likely impacts poor depot facilities have on operational performance. As a sense check, we can observe the relative performance of more modern depots in the Powercor network. On balance we are comfortable our assumptions are not unreasonable
- EMCa has made unsubstantiated judgement calls in significantly reducing, or completely removing various benefits streams. EMCa's has not provided any evidence in support of why its substitute assumptions are superior to our own
- EMCa's approach involves piecemeal adjustments to specific assumptions. This presumes a level of precision which doesn't exist. Further, EMCa's conclusion that the minimum spend option is preferable is highly sensitive to its substitute assumptions
- a more reasonable approach is to apply sensitivity analysis on the set of assumptions. Reducing all our benefits assumptions by 50 per cent shows replacing the depot is remains preferable to the minimum spend alternative.

For our revised proposal we have updated our benefits modelling to reflect the new options relevant to the replacement of Burwood depot and the new zoning of customers and workers under the future state. We also show sensitivity analysis around the input assumptions. The sensitivity analysis demonstrates that replacing the Burwood depot is the lowest cost option over the long term - whether that be on a greenfield or brownfield site.

We have also updated our benefits model to reflect a holistic view of our depot requirements across the entire network. We have demonstrated the benefits for customers from our proposed portfolio of upgrades across the network significantly outweigh the cost.

### 3.5 Recommendation

It is recommended that, option 2, the purchase of a brownfield site be pursued. This approach will enable us to effectively service the northern section of our distribution network. The scarcity of supply of suitable vacant sites within Burwood and the surrounding areas would mean that option 1 is unlikely to be a realistic option.

Our revised depot replacement forecast for Burwood is prudent and efficient. We have based our forecast costs on independent quotes. The replacement of the Burwood depot is supported by our updated benefits analysis and we have responded to the concerns raised by the AER and EMCA.

The table below provides the expenditure profile for option 2.

Table 8: Revised regulatory proposal, Burwood depot replacement, \$m 2021, direct cost

Expenditure forecast	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Capital expenditure	18.0	13.6				31.6

Source: United Energy