



# Keysborough depot upgrade

**UE RRP BUS 8.02 – Keysborough depot  
upgrade– Dec 2020 – Public**

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**Revised regulatory proposal 2021–2026**

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# 1 Overview

Business	United Energy
Title	Keysborough depot upgrade
Project ID	UE RRP BUS 8.02 – Keysborough depot upgrade – Dec 2020 - Public
Category	Other non-network capex
Identified need	The existing Keysborough depot requires significant upgrades due to the lack of adequate material storage, severely dated office buildings and poor traffic flow throughout the site. In addition, as a result of the need to relocate our Burwood site, our Keysborough site will become our key depot across our network patch with increased operational requirements.
Recommended option	Option 2: expansion and redevelopment of current depot
Proposed start date	Q3 2021
Supporting documents	<p>UE RRP ATT53 – JMA Architects – Keysborough site concept plan – Aug2020 – Confidential</p> <p>UE RRP ATT54 – JMA Architects – Keysborough office concept plan – Aug2020 – Confidential</p> <p>UE RRP ATT55 – B2B – Keysborough project and construction management high level estimate – Aug2020 – Confidential</p> <p>UE RRP MOD 8.01 - Other non-network capex - Dec 2020 – Public</p> <p>UE RRP MOD 8.04 - UE depots benefits model - Dec2020 – Public</p> <p>UE RRP BUS 8.01 - Burwood depot replacement – Dec2020 - Confidential</p>

The aim of this document is to provide an overview of how we have developed prudent and efficient forecasts for our revised Keysborough depot expansion and redevelopment over the 2021-2026 regulatory period. We outline the reasons why the expansion and redevelopment are critical for our network and present the revised cost quotes and benefit modelling which informed our decision making.

We are reproposing our Keysborough depot upgrade given the current depot lacks adequate material storage, dilapidated office buildings and poor traffic flow throughout the site. In addition, given the need to relocate the Burwood depot site, our Keysborough depot will become our primary depot, as number of customers being served from the depot increases and the number of workers housed at the site will grow. The back up control room from Burwood will also be relocated to Keysborough. To accommodate these changes, we have completed further scoping and design of the Keysborough site and this is reflected in our revised proposal.

Our Keysborough depot upgrade is prudent and efficient. The revised proposal is responsive to all the issues raised in the draft determination. Further, the revised Keysborough forecast includes updated independent cost quotes and revised benefit modelling. The new model provides further verification of the benefits for customers and reflecting our new future depot zoning.

For our revised proposal we have updated our analysis to:

- take into consideration 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.

Failure to upgrade and expand our Keysborough depot would have adverse impacts on our operational performance and impact network reliability. It would also prove detrimental in terms of depot security, facilitating workforce diversity and maintaining health and safety standards. A summary of our forecast expenditure requirements is shown in Table 1.

Table 1: Revised proposal, Keysborough depot upgrade and replacement, (\$ million, 2021, direct cost)

	2021/22	2022/23	2023/24	2024/25	2025/26
Capital expenditure	19.7				

# 2 Background

## 2.1 Our original proposal

Keysborough has had no significant capital upgrades in recent years resulting in sub-optimal traffic flows and facilities as work at the depot has grown, which is expected to result in the depot and site becoming non-compliant over the 2021-2026 period. The current depot site is dilapidated with the original 1960s interior and infrastructure remaining. Our original proposal included an expansion and upgrade of our Keysborough depot. It also included the purchase of a parcel of adjoining land and expansion and redevelopment of the depot within this expanded site.

We also submitted a report by McKenzie group, refer UE ATT066, which sets out the scope of work required to bring the Burwood depot up to today's building standards.

Following our original proposal, we provided quantitative estimates of the benefits of various options for addressing issues with the Keysborough 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.

These 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 and expansion to the existing Keysborough 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 50 per cent.

## 2.2 Draft determination

The draft determination substituted our proposed upgrade to the Keysborough depot with the 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 1/1000 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.

Additionally, the draft determination accepted our proposed timing for the Keysborough depot works<sup>1</sup>, which were proposed for 2023/24 and 2024/25. However, the draft determination revenue allowance was calculated based on the minimum spend alternative costs being incurred in the final year of the regulatory period.

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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 Keysborough depot upgrade and expansion is to address the lack of adequate material storage, dilapidated office buildings and poor traffic flow throughout the site. It is also to ensure our depot is a safe and inclusive place to work. Lastly, our Keysborough depot must be expanded given its increased importance with the closure and relocation of our Burwood depot to a smaller parcel of land. For more information on the Burwood relocation please refer to UE BUS 8.01 – Burwood replacement depot – Dec2020 – Confidential.

## 3.2 Summary of our revised proposal

We are reproposing our Keysborough depot expansion and redevelopment.

Since our original proposal, further planning and high-level design works have been undertaken on the site. We have attached evidence of these works to our business case. To redevelop our existing site we will need to include the construction of a multi-level concrete structure to serve the dual purpose of providing undercover storage for heavy fleet (elevated work platforms) and to allow for sufficient staff parking to cater for the number of workers to be housed at the site. The requirement for storing heavy fleet undercover is well established, while the absence of any form of commercial or off-street parking in proximity to the depot site means that all staff parking requirements will need to be catered for within the depot build.

Following new information of the closure and relocation of our Burwood depot to a smaller parcel of land, our Keysborough depot expansion and redevelopment is more critical given the uplift in depot capability and capacity that will be required. In our confidential business case to replace the Burwood depot, refer UE RRP BUS 8.01, we present the change in the geographical network patch serviced by each of our depots today, and when our Burwood depot is closed and relocated. The analysis demonstrates how the relocation of our Burwood depot impacts our operational requirements for our Keysborough depot, including:

- an increase of approximately 4,025 jobs per annum
- approximate 13 per cent reallocation in the number of customers served
- approximate 13 per cent reallocation in the number of workers housed
- the back-up control room, currently housed at Burwood, will need to be relocated to the Keysborough depot.

It is therefore critical we begin the upgrade and redevelopment of Keysborough in 2021/22 to ensure it is ready to become our main depot, in time for the closure of the Burwood site.

## 3.3 Revised findings of the costs and benefits modelling

We have considered the same options analysis for our revised proposal as our original proposal. The revised proposal however updates the cost benefit analysis to account for:

- an increase in customer and worker numbers to be resourced from the Keysborough depot following the closure of our Burwood depot
- the updated costs estimates associated with the more detailed scoping we have undertaken since submitting our original proposal

Table 2 shows the updated options analysis undertaken for our revised proposal, including a sensitivity analysis on the Net Present cost if all the benefits assumptions were changed by 50 per cent.



Table 2: Updated options analysis (\$ million, 2021, direct)

Option	Description	Cost 2021-2026	Net present cost 15 years	Sensitivity 50% reduction in benefit assumptions
0	Do nothing – do not upgrade the depot	-	60.5	26.6
1	Redevelop on existing site	17.9	43.4	26.0
2	Expand and redevelop existing depot	19.8	22.8	17.1
3	Purchase and develop on brownfield site	35.5	41.2	30.6
4	Minimum spend alternative	11.5	60.3	31.7

Option 2: expand and redeveloping existing depot is the most prudent and efficient option, consistent with our original proposal as well as considering the current depot limitations and the increased operational requirements facing our Keysborough depot.

### 3.4 Response to draft determination

The draft determination sites only one reason for substituting our proposed upgrade of the Keysborough depot with a minimum spend alternative. That is, EMCa's substitute assumptions in our benefits model result in the minimum spend option being lowest cost.

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

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.

However, we note that:

- 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 impact poor depot facilities have on operational performance. As a sense check, we observed 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 have not provided any evidence in support of its substitute assumptions and why they are any more reasonable than ours
- 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 expanding and redeveloping the depot remains preferable to the minimum spend alternative.

For our revised proposal we have updated the benefits modelling to reflect the future state depot zoning of customers and workers and to show sensitivity analysis around the assumptions.

The sensitivity analysis demonstrates that expanding and redeveloping the Keysborough depot on the existing site is the lowest cost option over the long term.

We have also updated our benefits model to reflect a holistic view of our depot requirements across the entire network to reflect the changes in depot zoning of customers and workers. 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 - expansion and redevelopment of current depot site be pursued. This strategy will allow us to meet increased operational requirements, address our current depot limitations and ensure the workplace is a safe and inclusive place to work.

The table below provides our revised proposal forecasts over the regulatory control period.

Table 3: Revised proposal costs (\$ million, 2021, direct costs)

	2021/22	2022/23	2023/24	2024/25	2025/26
Capital expenditure	19.7				

The table below provides a summary of our original proposal, the draft determination and our revised proposal for Keysborough. Our revised proposal is \$2.9 million less than our original proposal.

Table 4: Expenditure profile (\$ million, 2021, direct costs)

	Regulatory proposal	Draft determination	Revised proposal
Capital expenditure	22.3	9.0	19.7