Relocation of assets on Yarra Trams poles

CP BUS 9.02 - Yarra Trams - Jan2020 - Confidential

Regulatory proposal 2021–2026

CitiPower

January 2020

Contents

1 Overview

Title	Relocation of assets on Yarra Trams poles
Project ID	CP BUS 9.02 - Yarra Trams - Jan2020 - Confidential
Category	Operating expenditure
Identified need	The identified need is ensuring we continue to maintain reliability and safety of our electricity supply during Yarra Trams tram track renewal and upgrade works, namely the relocation or the replacement of 1,010 Yarra Trams poles that currently hold our assets during 2021–2026. The volume of pole relocation works proposed by Yarra Trams for the 2021–2026 represents a fundamental change in our operating environment outside of our control, which necessitates increased expenditure during 2021–2026 to meet the National Electricity Objective.
Recommended option	Option 2—relocate assets on new/relocated Yarra Trams poles
Proposed start date	2021/22
Supporting documents	1. CP MOD 9.01 - Step changes - Jan2020 - Public 2. CP ATT094 - Yarra Trams planned tram works - Jan2020 - Confidential 3. CP ATT178 - ESC - Electricity distribution code - Jan2020 - Public

Yarra Trams, with support of Public Transport Victoria and the Victorian Government, have embarking on a ten year program of substantial tram track renewals and upgrades. As part of the program, Yarra Trams will be relocating or replacing some of their electricity poles that hold our pole-top assets and conductors.

To maintain reliability and safety of electricity supply to customers affected by the proposed Yarra Trams pole relocations, we will be required to relocate our existing assets onto the new or relocated Yarra Trams poles.

The volume of pole relocation works proposed by Yarra Trams for the 2021–2026 represents a fundamental change in our operating environment outside of our control, which necessitates increased expenditure during 2021–2026 to meet the National Electricity Objective (**NEO**).

[redacted] Relocation of assets on poles forms part of our maintenance and repair operating expenditure. The proposed relocation program will result in a material increase in our operating expenditure not captured in the 2019 base year. The forecast incremental operating expenditure requirements in the 2021–2026 regulatory period are outlined in table 1.

Table 1 Expenditure forecasts for preferred option ($ million, 2021)

Expenditure forecast	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Incremental operating expenditure	2.8	2.8	2.9	2.9	3.0	14.4

Source: CitiPower

2 Background

Yarra Trams maintain a network of electricity infrastructure across Melbourne to power their trams, including around 50 substations and thousands of power poles. A large proportion of the Yarra Trams poles are located in the CitiPower network.

To minimise the need for new electricity infrastructure, and due to physical restrictions for electricity infrastructure in the streets, we attach our cross-arms, low voltage (**LV**) conductors, underground terminations, service lines and public lights on Yarra Trams poles where possible. We have pole-top assets on around 6,000 Yarra Trams poles. [redacted]

During tram track renewal works, such as the creation of super-stops and the augmenting of conductors for larger tram electricity loads, Yarra Trams often need to replace or relocate their poles to better locations or for added pole strength. In these cases, we are required to remove our assets from the poles and attach them to the new or relocated poles. In some cases, we may be required to relocate our poles as a result of the works, and this may include re-conductoring. Relocation of our assets forms part of our asset maintenance operating expenditure. [redacted]

Figure 1 shows a Yarra Tram pole on Chapel Street, Windsor, with our cross-arm and public light.

Figure 1 **Yarra tram poles with our assets**

Source: CitiPower

The tram renewal works to date has been on an ad-hoc basis. In 2019, as part of its Nicholson Street tram route 96 track renewal project, we were required to relocate our assets due to Yarra Trams works on Victoria Parade and Alexandra Parade, with total relocation works amounting to around $1.2 million. This included relocation of assets on 53 Yarra Trams poles and the relocation of six of our poles including re-conductoring.

On 7 November 2019, Yarra Trams provided us with the list of all planned tram track renewals and upgrades on their network to 2026/27, as part of their ten year project in conjunction with Public Transport Victoria and the Victorian Government, attachment CP ATT094 - Yarra Trams planned tram works - Jan2020 - Confidential. The ten year project includes the need to relocate assets on 1,010 Yarra Tram poles that currently hold our assets during 2021–2026. This is a significant increase in works compared to the past five year period.

3 Identified need

The identified need is ensuring we continue to maintain reliability and safety of our electricity supply during Yarra Trams tram track renewal and upgrade works, namely the relocation or the replacement of 1,010 Yarra Trams poles that currently hold our assets during 2021–2026.

The volume of pole relocation works proposed by Yarra Trams for the 2021–2026 represents a fundamental change in our operating environment outside of our control. This necessitates increased expenditure during 2021–2026 to meet the NEO to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

- price, quality, safety and reliability and security of supply of electricity
- the reliability, safety and security of the national electricity system.

4 Options analysis

To address the identified need we have considered three options.

4.1 Option 1—do nothing

Option 1—do nothing assumes Yarra Trams remove our assets on their poles and we do not relocate them to the new or relocated Yarra Trams poles nor place them on new poles.

Option 1 would result in a permanent disconnection of customers that are supplied from our assets currently on Yarra Trams poles. This is not a viable option as it does not enable us to meet our obligations to not disconnect customers under the Electricity Distribution Code (**Code**), nor meet the NEO.[1] Table 2 summarises the economic cost to customers from option 1, based on lost energy from disconnection. For the details on the estimated economic costs refer to For more details on the costings refer to model CP MOD 9.01 - Step changes - Jan2020 - Public.

Table 2 Economic costs of option 1 ($ million, 2021)

Expenditure forecast	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Economic costs of option 1	241	482	724	965	1,206	3,618

Source: CitiPower

4.2 Option 2—relocate our assets on new/relocated Yarra Trams poles

Under option 2 we would relocate our assets on new or relocated Yarra Trams poles to ensure reliability and safety of electricity supply to affected customers. This is the least-cost option as it maintains the current assets in the network and does not require the assets to be replaced. Option 2 costs are considered incremental to the actual operating expenditure incurred in the 2019 base.

Table 3 demonstrates the incremental operating expenditure required for option 2. The cost is based on the expected volume of relocations during 2021–2026 and using the average unit cost of the actual works in 2019, less the value captured in the base year. For more details on the costings refer to model CP MOD 9.01 - Step changes - Jan2020 - Public.

Table 3 Estimated incremental operating expenditure of option 2 ($ million, 2021)

Expenditure forecast	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Incremental operating expenditure under option 2	2.8	2.8	2.9	2.9	3.0	14.4

Source: CitiPower

4.3 Option 3—install new poles and assets or move assets underground

Under option 3 we would install new poles and assets on the poles, or underground the assets, to replace the assets removed from the Yarra Trams poles. This option would allow us to own and operate the poles that hold our assets, or to hold our assets underground, reducing the cost of asset relocation in the future. Option 3 would require capital expenditure for building new assets or moving assets underground. There would also be a corresponding large cost on customers to install their own underground service connections as a result.

[1] CP ATT178: Essential Services Commission of Victoria, Electricity Distribution Code, Clauses 12.1–12.6

Based on previous works, we estimate the cost of installation of new pole and moving assets underground to be around three times the cost of the asset relocation.

We have not conducted a benefit analysis of this option due to limited opportunity to do so since receiving Yarra Trams plans. At a high-level, we estimate customer benefits of relocating assets on Yarra Trams poles or on our own poles would be identical. Our high-level assessment of the benefits of undergrounding our assets (i.e. more supply reliability or safety) is that the benefits would be less than three times the value of customer benefits under option 2 (the benefits should be three times higher as the costs are about three times higher). It would be difficult to generate such high benefits as our reliability performance on our network is already very high, particularly in Melbourne's CBD.

Table 4 summarises estimated capital expenditure required for option 3. For more details on the costings refer to model CP MOD 9.01 - Step changes - Jan2020 - Public.

Table 4 Estimated capital expenditure of option 3 ($ million, 2021)

Expenditure forecast	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Capital expenditure under option 3	11.2	11.2	11.2	11.2	11.2	56.0

Source: CitiPower

5 Recommendation

We recommend option 2—relocate our assets on new/relocated Yarra Trams poles. This option is the least-cost option that enables us to continue to maintain reliability and safety of affected customers, and continue to meet the NEO.

Option 1—do nothing is not recommended as it does not allow us the opportunity to ensure reliability and safety to affected customers and meet the requirements of the Code nor the NEO. Option 3—install new poles and assets or move assets underground, is a costlier solution for meeting the identified need that does not provide customer benefits that justify the magnitude of higher cost.

Table 5 summarises the incremental operating expenditure of the preferred option.

Table 5 Expenditure forecasts for preferred option ($ million, 2021)

Year	2021/22	2022/23	2023/24	2024/25	2025/26	Total
Incremental operating expenditure under option 2	2.8	2.8	2.9	2.9	3.0	14.4

Source: CitiPower