CITIPOWER

AUGMENTATION

CBD SECURITY OF SUPPLY

CP BUS 3.04 – PUBLIC

2026–31 REGULATORY PROPOSAL

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1. Overview

The Electricity Distribution Code of Practice obligates us to ensure that the Melbourne CBD is 'N-1 Secure'. That is, we must maintain supply after the loss of two 66kV cable elements, with an allowance of 30 minutes switching time after the loss of the first element. The N-1 secure standard is a stronger planning requirement than probabilistic planning.

Demand at our JA zone substation is forecast to exceed its summer and winter N-1 ratings in 2027. This will lead to a breach of our N-1 secure compliance requirements under the EDCoP without intervention.

Our preferred option to ensure we maintain compliance with the N-1 secure standard set for Melbourne's CBD is to construct three new feeders from MG to JA. This option delivers the highest net benefits for customers.

Table 1 below shows the capital expenditure forecast for the preferred option.

TABLE 1 EXPENDITURE FORECASTS FOR PREFERRED OPTION ($M 2026)

CAPITAL EXPENDITURE	FY27	FY28	FY29	FY30	FY31	TOTAL
Construct new feeders from MG to JA	8.8	10.3	-	-	-	19.1

However, this option maintains a risk of non-compliance late in the 2026–31 regulatory period. We considered an option to rebuild our J zone substation, which would ensure we maintained compliance with the N-1 secure planning standard through the 2026–31 regulatory period.

Considering factors such as the difference in net customer benefits between options, the required capex investment to rebuild J and the clear requirements under our CBD security of supply obligations, we believe the need to rebuild J can be managed through the existing uncertainty framework.

We are relying on a contingent project application to rebuild J to ensure we maintain compliance through the 2026–31 regulatory period.

This project will also be subject to a regulatory investment test for distribution (RIT–D) before the economic timing of the preferred network option to maximise the chance of a viable non-network solution being identified.

2. Southwest Melbourne CBD

Historically, the southwest of Melbourne's Central Business District (CBD) was characterised by manufacturing activities. While these businesses have long since disappeared, there are still low-rise warehouse sites available that have become prime targets for redevelopment. The southwest of Melbourne's CBD has been experiencing significant growth given ongoing redevelopment, primarily to provide new mixed residential and commercial developments.

Similar developments have also been seen in Docklands, which is supplied by the CBD electrical network as there is no local zone substation within the Docklands precinct. This growth is placing increasing demands on the CBD electrical infrastructure.

The Docklands precinct and the southwest portion of the CBD is supplied by the Little Bourke Street (JA) zone substation. As part of meeting CBD security of supply obligations, JA is served by four 66kV lines, with two from the West Melbourne Terminal Station (WMTS) and one each from Victoria Market (VM) and Waratah Place (WP). JA comprises of three 66/11 55MVA transformers supplying to 9,746 customers in the area.

3. Identified need

The identified need is to maintain reliability of electricity supply for customers within the required CBD security of supply standards.

Under Clause 19.5 of the Electricity Distribution Code of Practice (EDCoP), we have an obligation to take steps to strengthen the security of supply in the Melbourne CBD.

The obligation requires us to ensure that the Melbourne CBD is 'N-1 Secure'. That is, we must maintain supply after the loss of two 66kV cable elements, with an allowance of 30 minutes switching time after the loss of the first element. The N-1 secure standard is a stronger planning requirement than probabilistic planning.

We must assess whether our CBD zone substations that are subject to the N-1 secure planning standard continue to meet the standard through the 2026–31 regulatory period.

In the case where there is an outage at the West Melbourne Terminal Station supplying JA, and there is a fault on one of the other sub-transmission lines supplying JA, JA would only be supplying electricity with one transformer.

In this scenario, the N-1 Secure rating of the JA ZSS is the cyclic rating of the single remaining transformer, which is 63.9 MVA in summer and 63.7 MVA in winter.

The operational load transfer capability of the network is 60.1 MVA, which means that JA would breach its N-1 secure requirements if demand exceeded 124 MVA in summer or 123.8 MVA in winter.

A single line diagram showing the interrelationships between our assets is shown in figure 1 below.

FIGURE 1 JA ZONE SUBSTATION SINGLE LINE DIAGRAM

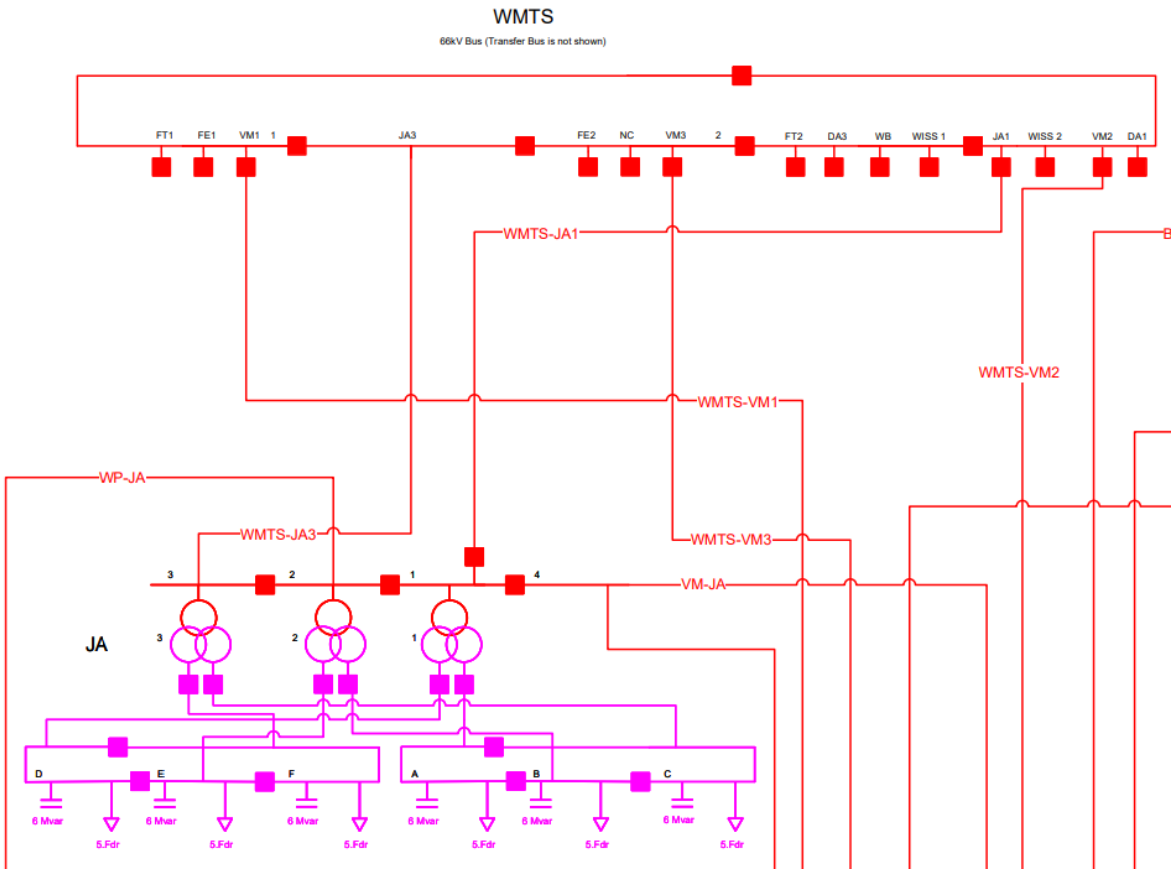
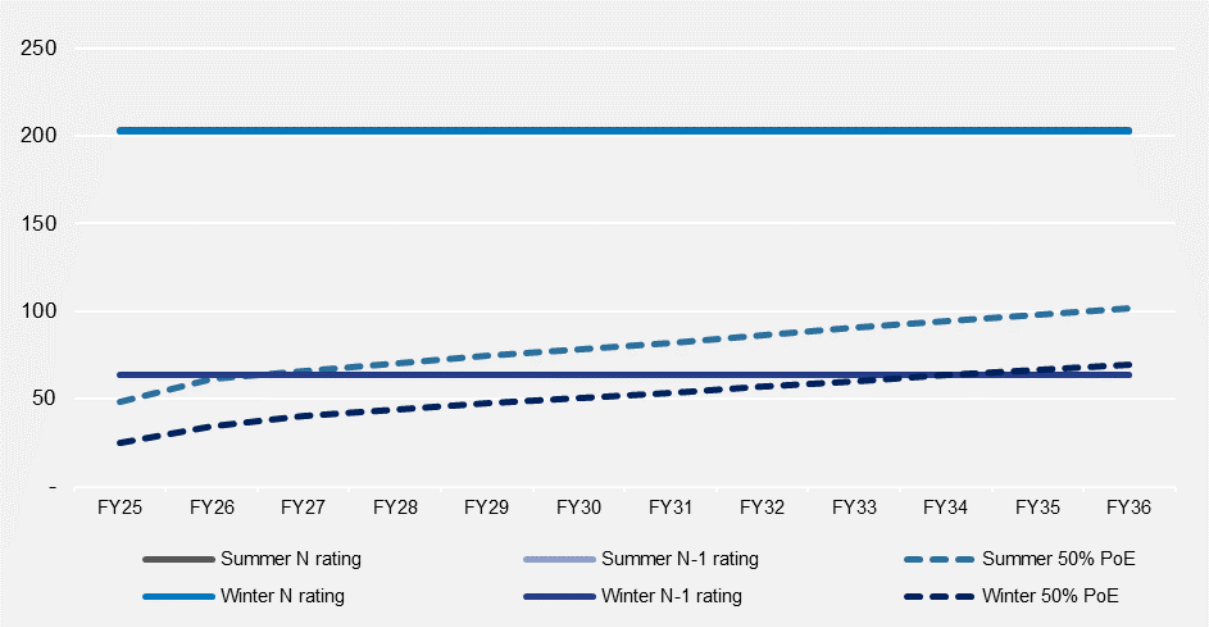


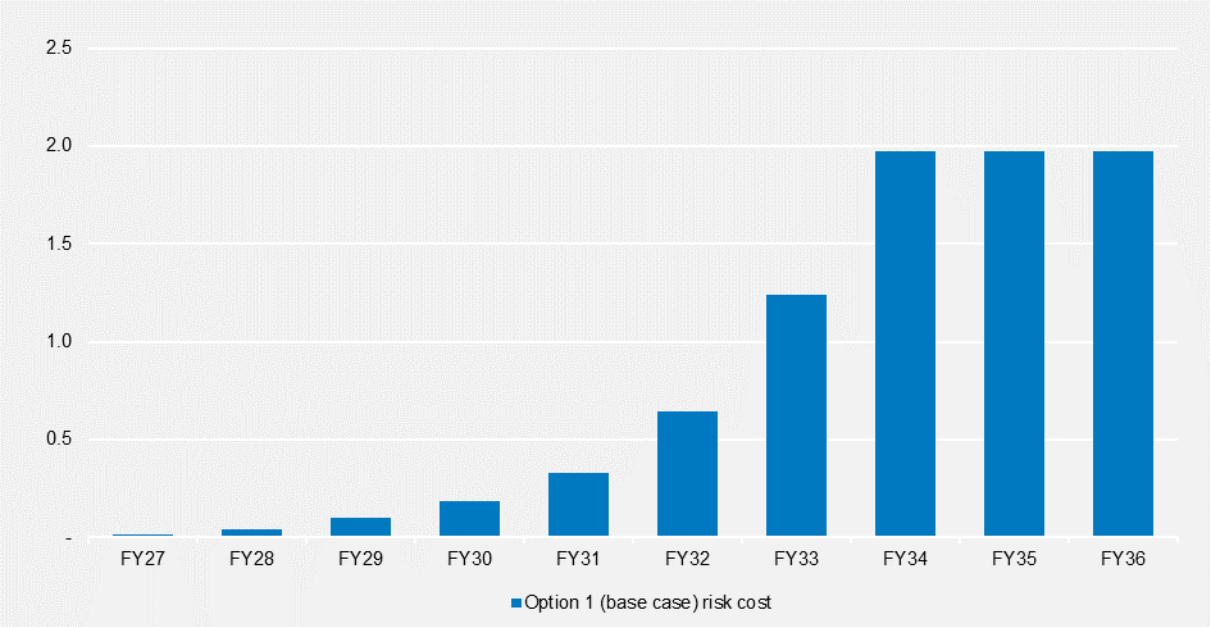
Figure 2 below shows that the maximum demand at JA is forecast to exceed its summer and winter N-1 ratings in 2027. This will lead to a breach of our N-1 secure compliance requirements under the EDCoP.

FIGURE 2 MAXIMUM DEMAND FORECAST AT JA ZSS (MVA) IN THE N-1 SECURE SCENARIO



The corresponding energy at risk at JA ZSS without investment is forecast to increase throughout the 2026–31 regulatory period, shown in figure 3 below, driven by forecast population growth, development and electrification. The value of expected unserved energy is based on the AER's 2023 VCR.

FIGURE 3 VALUE OF EXPECTED UNSERVED ENERGY ($M, 2026)



4. Assessment of credible options

Several options were considered to meet the CBD security of supply compliance requirements in our JA supply area. A summary of the costs, benefits and net present value of each option considered is provided in table 2 below, with further detail provided in our attached cost-benefit modelling.[1]

TABLE 2 OPTIONS SUMMARY ($M, 2026)

OPTION		PV COSTS	PV BENEFITS	NET BENEFITS
1	Maintain status quo	-	-	-
2	Construct new feeders from MG to JA	-10.2	16.3	6.1
3	Construct new feeders from MG to JA and rebuild J	-43.2	19.7	-23.5
4	Rebuild J zone substation	-33.0	19.4	-13.6

4.1 Option one: maintain status quo

Maintaining the status-quo provides no change in the energy at risk profile set out in figure 2 above, resulting in a breach of our N-1 secure compliance requirements.

This option will lead to increased supply interruptions in Melbourne's CBD with two sub-transmission lines out of service.

This option fails to address the identified need of maintaining reliability of electricity supply for customers within the required CBD security of supply standards.

4.2 Option two: construct new feeders from MG to JA

This option involves construction of three new feeders from MG in the South Wharf area to JA, located in the southwest of the CBD.

Three new 12 MVA rated 11kV feeders will be installed from MG to JA and would be integrated through switching arrangements into the existing 11kV distribution network.

This option allows the CBD security of supply obligations to be met early in the period, but there is a continued forecast risk of non-compliance towards the end of the period.

The present value of expenditure required under this option is described in table 3 below.

[1] CP MOD 3.01 – CBD security of supply – Jan2025 – Public

TABLE 3 OPTION TWO: BENEFITS ASSESSMENT SUMMARY ($M 2026)

OPTION	PV COSTS	PV BENEFITS	NET BENEFITS
Construct new feeders from MG to JA	-10.2	21.4	11.1

4.3 Option three: construct new feeders from MG to JA and rebuild J

As noted above in option two, there is forecast risk of non-compliance towards the end of the regulatory period if only new feeders from MG to JA are completed.

To address this forecast non-compliance, option three proposes to complete the works required for option two and subsequently rebuild the currently decommissioned J (Spencer Street) zone substation with new sub transmission lines.

This option addresses the forecast risk of non-compliance and would enable us to remain compliant with CBD security of supply obligations through the 2026–31 regulatory period.

Rebuilding J will include a new building capable of supporting three 55 MVA transformers, 66kV gas insulated switchgear, two 55 MVA transformers, new sub transmission lines and other associated equipment to ensure assets are connected safely and conform to system security requirements.

The present value of expenditure required under this option is described in table 4 below.

TABLE 4 OPTION THREE: BENEFITS ASSESSMENT SUMMARY ($M 2026)

OPTION	PV COSTS	PV BENEFITS	NET BENEFITS
Construct new feeders from MG to JA and rebuild J	-43.2	26.5	-16.7

4.4 Option four: rebuild J zone substation

This option tests whether we would be compliant with CBD security of supply obligations if we only rebuilt our J zone substation, including associated sub transmission works, without constructing the new feeders from MG to JA.

While the rebuilt J zone substation would deliver compliance with our obligations beyond 2030 once it is constructed, we would remain non-compliant at the beginning of the regulatory period. Therefore, this option is not credible because we would not meet our compliance obligations.

The present value of expenditure required under this option is described in table 5 below.

TABLE 5 OPTION FOUR: BENEFITS ASSESSMENT SUMMARY ($M 2026)

OPTION	PV COSTS	PV BENEFITS	NET BENEFITS
Rebuild J zone substation	-33.0	26.2	-6.8

4.5 Option six: non-network solution

Given the size of the support required from a non-network solution, and it being required at all times of the year to maintain supply reliability within the CBD supply area, it is unlikely that a non-network option would be technically and economically viable to address the identified need.

However, we will continue to publish information on this constraint and project in the Distribution Annual Planning Report (DAPR) and follow the processes outlined in our demand side engagement strategy to ensure that non-network providers are given the opportunity to propose economic solutions that are technically and economically viable.

With the level of investment required for the most expensive credible option, this project will be subject to a regulatory investment test for distribution (RIT–D) before investment. This will maximise the chance of a viable non-network solution being identified through the engagement of non-network service providers during the RIT-D consultation.

5. Preferred option

Option two, to construct new feeders from MG to JA delivers the highest net benefits for customers. However, this option maintains a risk of non-compliance late in the 2026–31 regulatory period.

Option three, to construct new feeders from MG to JA and rebuild J ensures compliance with our regulatory obligations through the entire 2026–31 regulatory period. However, this option the lowest net benefits for customers.

Considering factors such as the difference in net customer benefits between options, the required capex investment to rebuild J and the clear requirements under our CBD security of supply obligations, we believe the need to rebuild J can be managed through the existing uncertainty framework.

The preferred option for the 2026–31 regulatory period is therefore to construct three new feeders from MG to JA and rely on a contingent project application to rebuild J to ensure we maintain compliance through the 2026–31 regulatory period.

This option is preferred as it maximises net benefits for customers and credibly addresses the identified need.

A detailed economic assessment can be found in our attached cost benefit modelling.[2]

Further details about our use of the uncertainty framework to rebuild J only if required can be found in our contingent project application.[3]

This project will also be subject to a regulatory investment test for distribution (RIT–D) before the economic timing of the preferred network option to maximise the chance of a viable non-network solution being identified.

Table 6 shows the capital expenditure forecast for the preferred option.

TABLE 6 EXPENDITURE FORECASTS FOR PREFERRED OPTION ($M 2026)

EXPENDITURE	FY27	FY28	FY29	FY30	FY31	TOTAL
Construct new feeders from MG to JA	8.8	10.3	-	-	-	19.1

5.1 Sensitivity analysis

Sensitivity analysis was undertaken to understand the impact of increasing costs and decreasing the value of energy at risk mitigated on the net economic benefits of each option in different scenarios. Option two provides the highest net economic benefit under all scenarios and remains the preferred option. Further information on our sensitivity analysis can be found in our attached cost benefit modelling.[4]

In addition, we have utilised the uncertainty framework to manage potential risks for customers. Our proposed treatment of the J zone substation rebuild as a contingent project sufficiently addresses potential uncertainties.

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2 CP MOD 3.01 – CBD security of supply – Jan2025 – Public
3 CP ATT 10.01 – Managing uncertainty – Jan2025 – Public
4 CP MOD 3.01 – CBD security of supply – Jan2025 – Public

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