CITIPOWER

AUGMENTATION

FEEDER THERMAL AUGMENTATION PROGRAM

CP BUS 3.08 – PUBLIC

2026–31 REGULATORY PROPOSAL

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1. Overview

Our CitiPower network supplies power to Melbourne's Central Business District (CBD) and inner suburbs, which are forecast to experience rapid residential, commercial, and industrial load growth. Melbourne city's residential population is forecast to grow by 44,921 people between 2026 and 2036.

The identified need in this business case is to mitigate energy at risk resulting from demand-driven constraints on three feeders in the North Melbourne, St Kilda and West Brunswick. Cost benefit analyses were undertaken to assess credible options to resolve constraints on the following feeders:

- BQ017 from the Bouverie Queensberry (BQ) zone substation
- SK001 from the St Kilda (SK) zone substation
- WB011 from the West Brunswick (WB) zone substation.

Expenditure to deliver the preferred option for each feeder is summarised in table 1 below.

TABLE 1 PREFERRED OPTIONS EXPENDITURE ($M, 2026)

FEEDER	FY27	FY28	FY29	FY30	FY31	TOTAL
BQ017 – construct a 6MVA feeder from BQ	2.2	2.2	-	-	-	4.5
SK001 – augment thermal rating of SK001 feeder	-	1.0	-	-	-	1.0
WB011 – WB011 backbone upgrade	0.3	-	-	-	-	0.3

Each of these proposed investments is supported by our attached detailed economic modelling.[1]

[1] See CP MOD 3.08 – Bouverie Queensberry feeder works - Jan2025 – Public, CP MOD 3.06 - St Kilda feeder works - Jan2025 – Public and CP MOD 3.07 – West Brunswick feeder works - Jan2025 - Public

2. BQ017 feeder

BQ017 is a high-capacity 11kV feeder with a thermal capacity of 10.6MVA. This feeder provides electricity supply to residential and commercial customers in the North Melbourne and Parkville areas and is supplied from Bouverie Queensberry zone substation (BQ).

2.1 Identified need

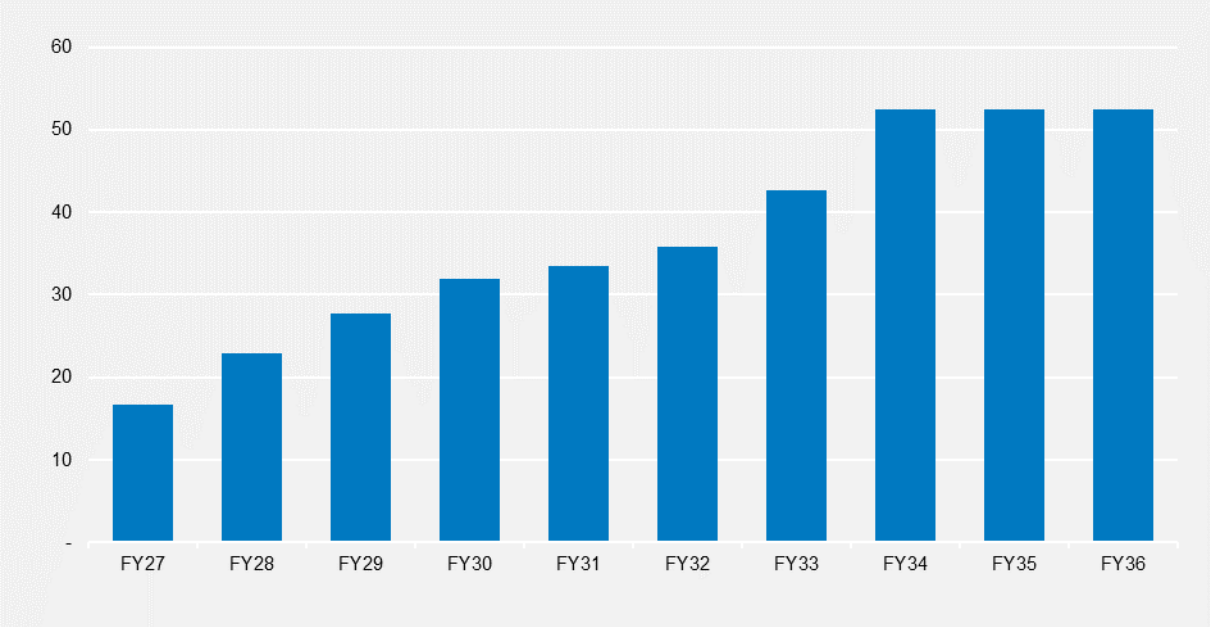
The North Melbourne area is growing, driven by the re-development of the Arden Precinct around Arden Station, which the Victorian Government has positioned as an international innovation and technology precinct. The government aims for the precinct to host up to 34,000 jobs and house 20,000 people by 2051.

Population growth and new block loads resulting from residential building development are expected to drive significant demand growth on BQ017. Without intervention, demand growth is expected to exceed the capacity at BQ017 at the beginning of the 2026—31 regulatory period.

Exceeding the thermal capacity rating of BQ017 will result in deteriorating reliability of supply.

The corresponding total value of energy at risk supplied by BQ017 is shown in figure 1 below.

FIGURE 1 BQ017 VALUE OF EXPECTED UNSERVED ENERGY ($M, 2026)



2.2 Assessment of credible options

Several credible options were considered to meet the identified need. A summary of the cost and net benefit of each credible option are described in table 2 below. Further detail is provided in our attached cost-benefit modelling.

Two other options were considered including constructing a feeder from the Victoria Market zone substation and transferring load onto adjacent feeders, but these options were not credible.

TABLE 2 OPTIONS CONSIDERED AND BENEFIT SUMMARY ($M, 2026)

DESCRIPTION OF WORKS	ASSESSMENT	PV COST	NET BENEFIT
Option one (base case): no capital investment or change to existing practices	The forecast loads on feeder BQ017 will result in maximum demand on the feeder exceeding its thermal rating in the 2026–31 regulatory period. This option fails to address the identified need to maintain reliability of supply to customers	-	-
Option two: construct a 6MVA feeder from BQ	Option two constructs a new feeder to offload BQ017. This creates demand flexibility as it provides capacity to transfer loads from BQ017 during contingencies	-2.4	629.4
Option three: upgrade BQ017 to increase its capacity	Option three upgrades BQ017 to increase its thermal rating. This ensures sufficient capacity on the feeder to maintain reliability of supply and mitigate forecast energy at risk	-1.6	619.6

2.3 Preferred option

The preferred option to address the identified need is option two. It provides sufficient capacity to manage growing demand and results in the highest net economic benefit for customers.

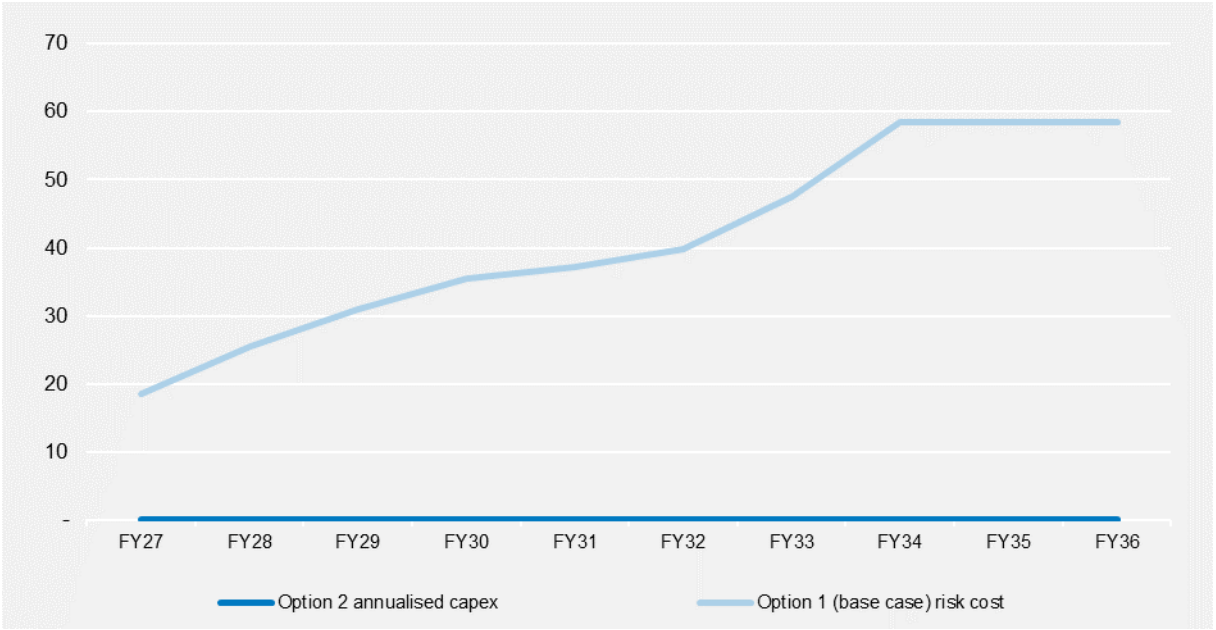
The forecast expenditure for option two is shown in table 3.

TABLE 3 EXPENDITURE FORECASTS FOR PREFERRED OPTION ($M, 2026)

PROJECT	FY27	FY28	FY29	FY30	FY31	TOTAL
Construct a 6MVA feeder from BQ	2.2	2.2	-	-	-	4.5

Assessment of optimum timing found the economic benefits of option two are maximised if it is commissioned no later than FY29, when the value of energy at risk exceeds the annualised project cost. Delivery of this new feeder has been extended due to the complexity of inner-Melbourne works and required stakeholder involvement. This assessment is shown in figure 2.

FIGURE 2 TIMING OF PREFERRED OPTION ($M, 2026)



2.4 Sensitivity analysis

Sensitivity analysis was undertaken to understand the impact of increasing and decreasing both the cost and 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.

3. SK001 feeder

SK001 is an 11kV feeder that supplies electricity to a growing residential population in St Kilda. It is supplied from St Kilda zone substation (SK) and has a thermal capacity of 5.0MVA.

St Kilda zone substation (SK) is located in the southern part of Melbourne providing power to the St Kilda area and is served by the sub transmission lines from Richmond Terminal Station (RTS). Currently the SK is comprised of three 20/27MVA transformers operating at 66/11kV level.

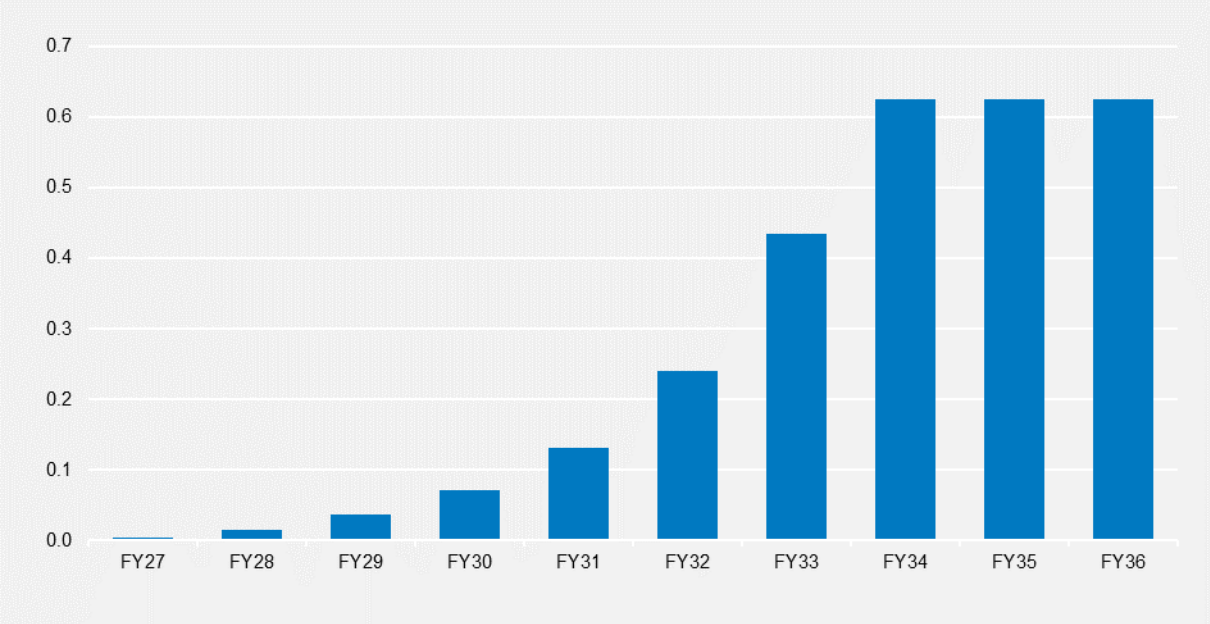
3.1 Identified need

Growth in demand on the feeder is driven by a growing population, with is forecast to increase by approximately 10 percent between 2026 and 2036, and rapid electric vehicle uptake. Without intervention, demand is expected to exceed capacity at SK001 in 2029.

Exceeding the thermal capacity rating of SK001 will result in deteriorating reliability of supply.

The corresponding total value of energy at risk supplied by SK001 is shown in figure 3 below.

FIGURE 3 SK001 VALUE OF EXPECTED UNSERVED ENERGY ($M, 2026)



3.2 Assessment of credible options

Several credible options were considered to meet the identified need. A summary of the cost and net benefit of each credible option are described in table 4 below. Further detail is provided in our attached cost-benefit modelling.

TABLE 4 SUMMARY OF OPTIONS CONSIDERED ($M, 2026)

DESCRIPTION OF WORKS	ASSESSMENT	PV COST	NET BENEFIT
Option one (base case): no capital investment or change to existing practices	The forecast loads on SK001 will result in maximum demand on the feeder exceeding its thermal rating in the 2026–31 regulatory period. Option one fails to address the identified need to maintain reliability of supply to customers	-	-
Option two: augment thermal rating of SK001 feeder	Option two replaces existing exit cable at SK001 with copper cable to increase SK001's rating. This will ensure the feeder has sufficient thermal capacity to mitigate energy at risk	-0.5	6.4

3.3 Preferred option

The preferred option to address the identified need is option two. It ensures that SK001 has sufficient thermal capacity to supply present and forecast loads and results in the highest net economic benefit for customers.

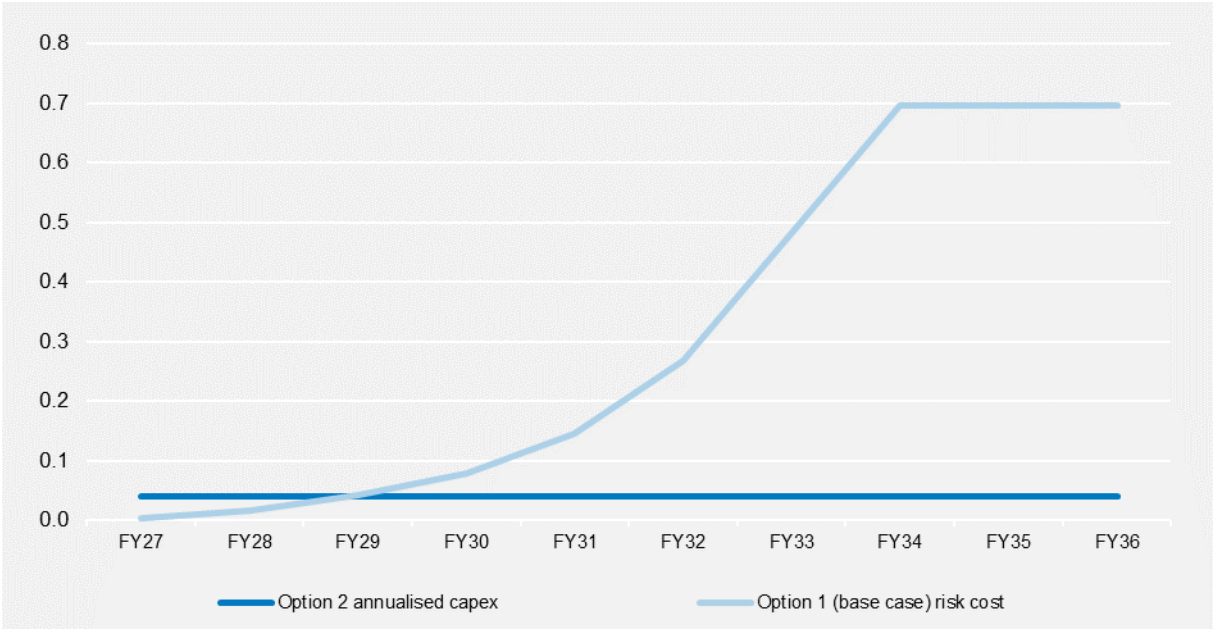
The forecast expenditure to deliver option two is shown in table 5.

TABLE 5 EXPENDITURE FORECASTS FOR PREFERRED OPTION ($M, 2026)

PROJECT	FY27	FY28	FY29	FY30	FY31	TOTAL
Augment thermal rating of SK001 feeder	-	1.0	-	-	-	1.0

Assessment of optimum timing found the economic benefits of option two are maximised if it is commissioned no later than FY28, when the value of energy at risk exceeds the annualised project cost. This assessment is shown in figure 4.

FIGURE 4 TIMING OF PREFERRED OPTION ($M, 2026)



3.4 Sensitivity analysis

Sensitivity analysis was undertaken to understand the impact of increasing and decreasing both the cost and 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. WB011 feeder

WB011 provides electricity supply to residential and commercial customers in the Brunswick area and is supplied from the West Brunswick zone substation (WB). The feeder has a thermal capacity of 7.6 MVA.

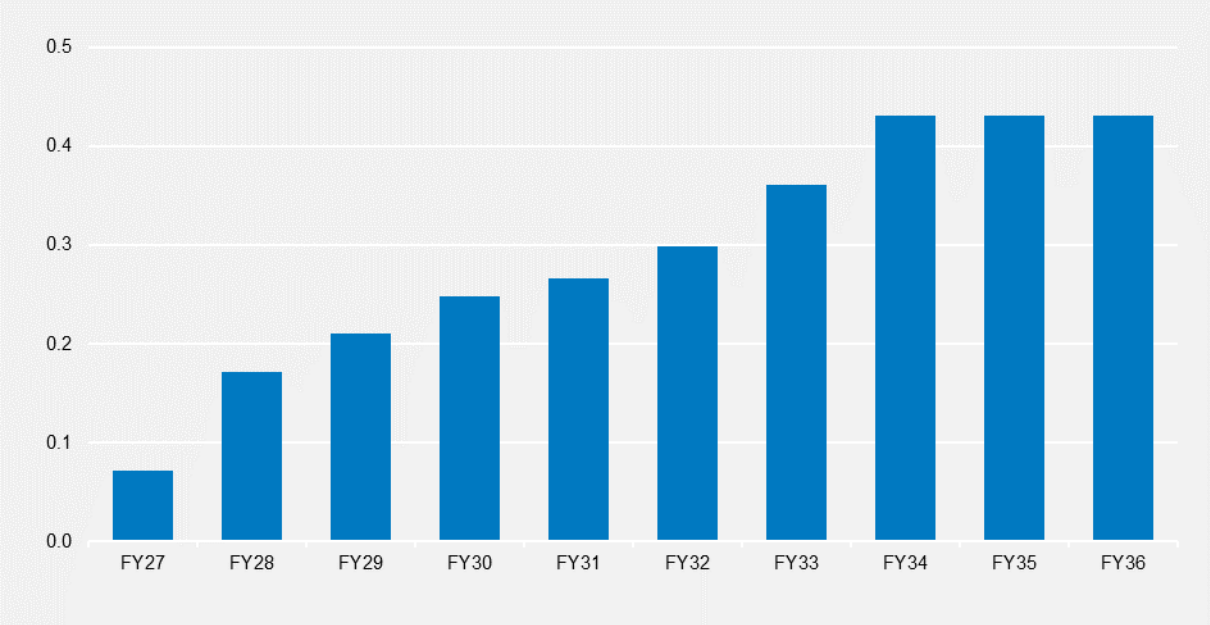
4.1 Identified need

Population and block load growth is forecast to drive an increase in demand on WB011. One section of the feeder is constrained in capacity with a 4.1 MVA rating. Without intervention, demand growth is expected to exceed the capacity of this section in FY27.

Exceeding the thermal capacity rating will result in deteriorating reliability of supply.

The corresponding total value of energy at risk supplied by WB011 is shown in figure 5 below.

FIGURE 5 WB011 VALUE OF EXPECTED UNSERVED ENERGY ($M, 2026)



4.2 Assessment of credible options

Several credible options were considered to meet the identified need. A summary of the cost and net benefit of each credible option are described in table 6 below. Further detail is provided in our attached cost-benefit modelling.

TABLE 6 OPTIONS CONSIDERED AND BENEFIT SUMMARY ($M, 2026)

DESCRIPTION OF WORKS	ASSESSMENT	PV COST	NET BENEFIT
Option 1 (base case): No capital investment or change to existing practices	The forecast loads on feeder WB011 will result in maximum demand on the feeder exceeding one section of the feeder thermal rating in the 2026–31 regulatory period. This option fails to address the identified need to maintain reliability of supply to customers	-	-
Option two: WB011 backbone upgrade	Option two upgrades 1.3km of cable on WB011, which will provide sufficient capacity to support demand growth and mitigate energy at risk	-0.2	5.3

4.3 Preferred option

The preferred option to address the identified need is option two. It provides sufficient capacity to manage growing demand and results in the highest net economic benefit for customers.

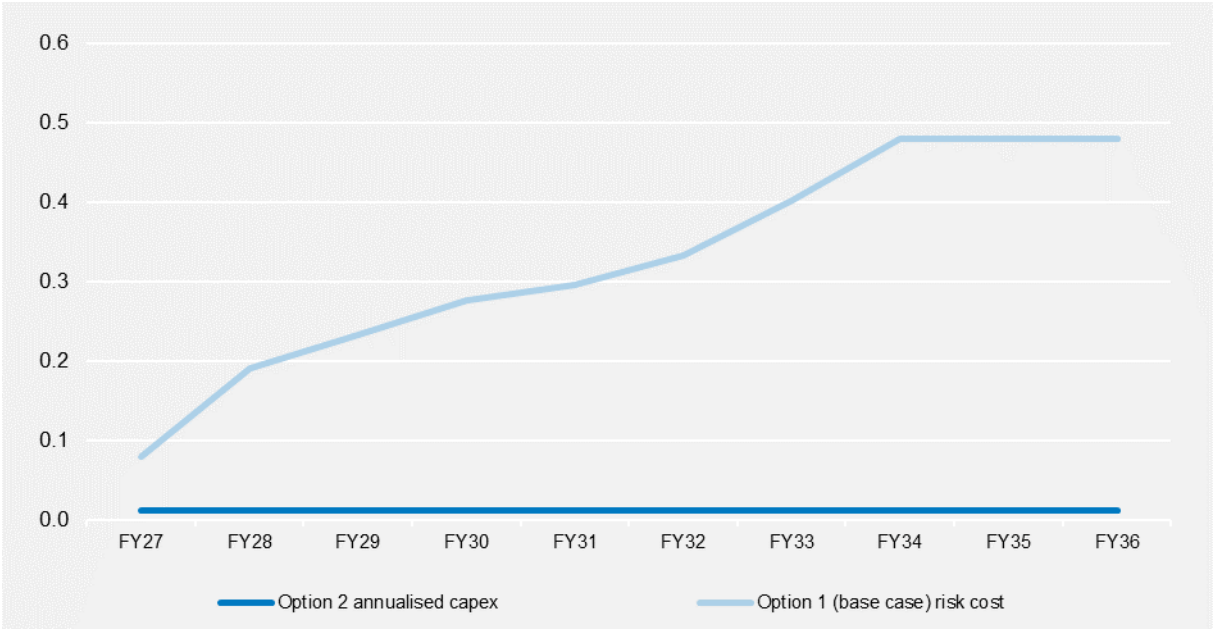
The forecast expenditure for option 2 is shown in table 7.

TABLE 7 EXPENDITURE FORECASTS FOR PREFERRED OPTION ($M, 2026)

PROJECT	FY27	FY28	FY29	FY30	FY31	TOTAL
WB011 backbone upgrade	0.3	-	-	-	-	0.3

Assessment of optimum timing found the economic benefits of option two are maximised if it is commissioned no later than FY27, as the value of energy at risk exceeds the annualised project cost from the beginning of the 2026–31 regulatory period. This assessment is shown in figure 6.

FIGURE 6 TIMING OF PREFERRED OPTION ($M, 2026)



4.4 Sensitivity analysis

Sensitivity analysis was undertaken to understand the impact of increasing and decreasing both the cost and 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.

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