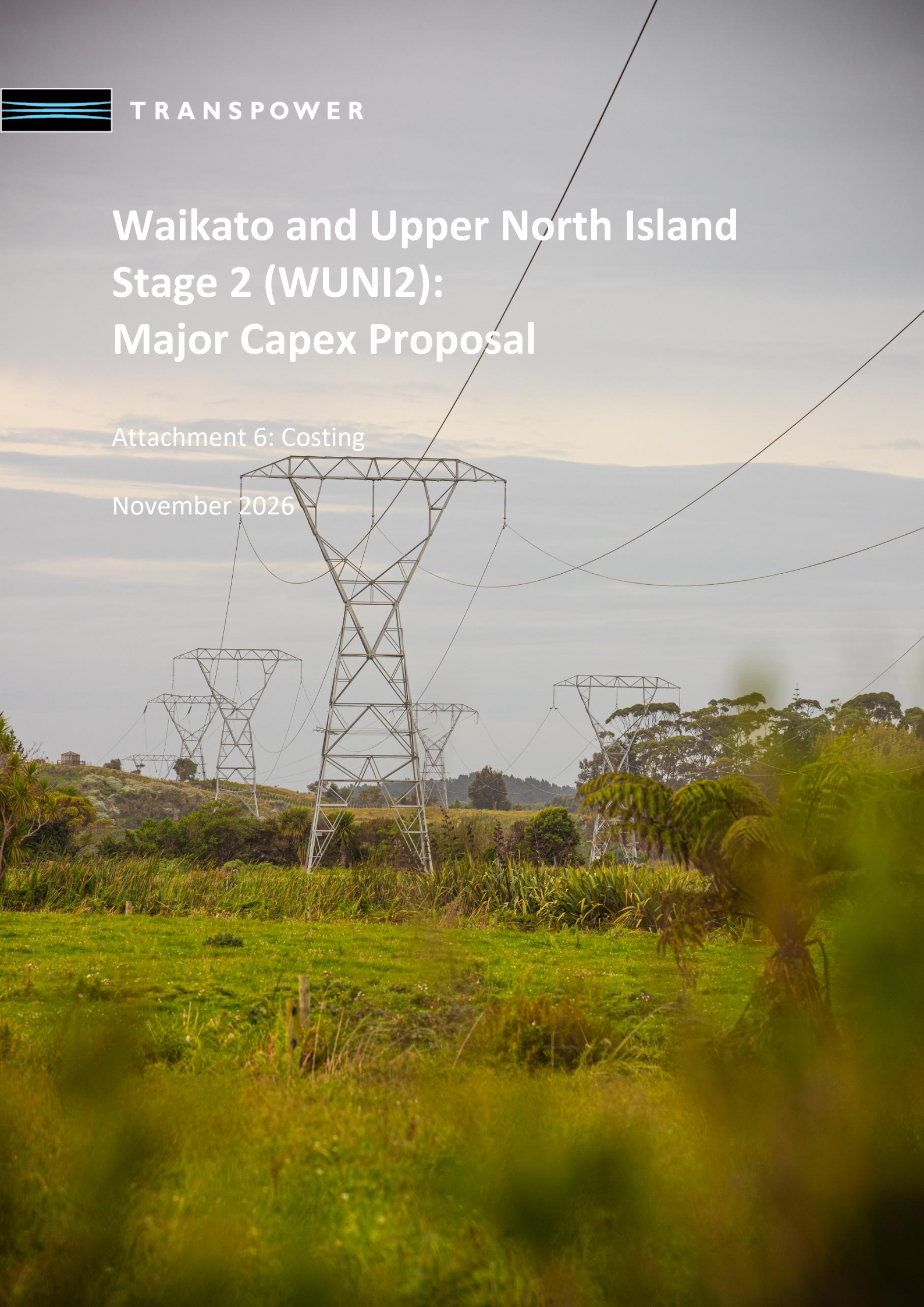


TRANSPOWER

Waikato and Upper North Island Stage 2 (WUNI2): Major Capex Proposal

Attachment 6: Costing

November 2026

1 Purpose

This Attachment forms part of our Waikato and Upper North Island (**WUNI**) Stage 2 Major Capex Proposal (**MCP**).

The purpose of this Attachment is to provide an overview of our preparation of costs. It focuses on how we have assessed the costs of the short-listed development plans (investment options) and the proposed major capex allowance (**MCA**) for the proposed Stage 2 investments.

Contents

1 Purpose 2

2 Approach to estimating capex 4

3 Capex categories 6

4 WUNI Stage 2 cost estimates 7

5 Cost changes since short list consultation 10

6 Anticipated future stages 11

7 Major capex allowance 12

8 Project requirements and project management approach to achieve proposed major capex project outputs 14

8.1 Project requirements 14

8.2 Project management approach 15

2 Approach to estimating capex

We use Transpower's Enterprise Estimating System (**TEES**) to estimate the cost of all capex projects.

TEES produces cost estimates for a project based on historical rates from past projects or known current rates, as well as information from consultants and/or potential vendors (e.g., RFPs, concept design and solution study exercises).

It also factors in changes in foreign exchange rates and costs of key commodities such as external labour, copper, steel and aluminium.

TEES provides several key benefits:

- Instant access to the best available, up-to-date information for all users
- The ability to apply cost escalation (commodity input prices and exchange rates)
- Consistency of cost estimation across the business
- Easy updates incorporating lessons learned from past projects
- High quality and detailed spend forecasting capability (spend curves which determine when spend will occur over the project duration)
- Links to and interfaces with key cost forecast information in Transpower's financial management system (**FMIS**)
- An opportunity to include environmental, legal, property and stakeholder costs
- An opportunity to include a risk adjustment informed by a quantitative risk assessment.

This structured approach ensures that our cost estimates are accurate, consistent, and reflective of real-world conditions.

Our cost estimates are P50 values

The capital cost estimates used in the investment test in Schedule D of the Capex IM[1] (**Investment Test**) and the proposed MCA are P50 estimates.

This means there is an equal probability (50%) that the actual cost will be higher or lower than our estimate;[2] and for risk adjustment and estimate variability, we take a probabilistic approach:

- for all capex categories except risk items, a probability distribution is assigned based on similar projects' performance against estimates;
- each identified risk item is assigned a probability of occurrence;
- each risk item is modelled as having an independent binomial probability of occurrence (unless a specific correlation is identified);
- each risk item is modelled with the distribution of costs if the risk occurs;
- a Monte Carlo simulation is run to combine all probability distributions and produce the overall estimate distribution;
- the Monte Carlo simulation results provide the risk adjustment and determine the P50 estimate value; and

1 Commerce Commission, Transpower Capital Expenditure Input Methodology [2012] NZCC 2 (**Capex IM**).

2 The cost estimate includes the confirmed STATCOM OEM tender price. This update is not material to the overall P50 estimate for the project.

- the simulation results also provide the P30 and P70 estimate values to define the major capex adjustment thresholds.

Our capital cost estimates are expressed in real 2026 NZ dollars. To calculate the (nominal) MCA, we apply:

- Consumers price index (**CPI**) inflation adjustments to reflect expected cost increases over time;[3] and
- Interest during construction (**IDC**) to account for financing costs.

This structured approach ensures our estimates are transparent, probabilistically sound, and aligned with industry best practices.

[3] The assumed inflation is based on the CPI projection in the Monetary Policy Statement September 2026 - Reserve Bank of New Zealand - Te Pūtea Matua.

3 Capex categories

In Table 1 we describe the high-level cost categories used for this MCP.

Table 1: Cost categories descriptions

Investigation	Investigation costs cover the development of the scope, timeline and costs for the project and the development of this MCP. These costs are capitalised and include expenses related to consenting and designation.
Transmission lines construction works	This includes material costs such as conductors, earth wires, towers, poles and foundations, insulators and hardware. This cost category captures all other major construction costs such as stringing costs (the labour and associated tools and machinery hire).
Civil works	Civil works are the costs to build foundations and other associated costs required for the primary plant to be installed and commissioned. The costs also include associated civil costs for this project such as oil containment, security fencing, earthworks, underground services and drainage and landscaping required as part of site development.
Overheads, consultants and contractors	Overhead costs are the Transpower staff and contractor overhead costs to deliver the project, and some overheads such as insurance, project management, health and safety plans.
Design	Design costs are the costs for detailed design and the technical investigations and studies required to implement the project. This category includes consultant support (e.g., environmental, noise) and commissioning consultants.
Primary plant works	Primary plant works are the costs of supply and installation of primary equipment such as transformers as well as associated equipment such as circuit breakers and bus modifications.
Cable works	Cable works are the costs of supplying and installing underground cable including the required trenching of the cable.
Protection works	Protection works are the costs to supply and install protection schemes related to the project.
Communications	This includes material costs such as bespoke type LCM cabinets and racks, fibre cables. This cost category captures construction costs associated with transmitting data and control signals in a substation (the labour and associated tools and machinery hire).
Secondary works	Secondary works include the design, install and commissioning of secondary equipment such as SCADA and communication devices.
Miscellaneous	Miscellaneous works include any associated project costs not covered elsewhere.
Legal	Legal costs include all required legal expenses for the project.
Property	Property costs include expenses related to land purchases and easements.
Environmental costs	Environmental costs cover the expenses required to meet environmental obligations.
Community Care Fund	Transpower's Community Care Fund supports local projects in communities directly affected by grid upgrades being developed as part of the project.
Stakeholder engagement	Stakeholder costs include expenses associated with obtaining stakeholder approval for the project works, and community and stakeholder engagement.
Risk allowance	This category includes all foreseeable risks that may impact project costs at a P50 confidence level.

4 WUNI Stage 2 cost estimates

Based on the application of the Investment Test, we have concluded that Option 4b is our proposed investment. This conclusion was also supported by stakeholders during the short list consultation process.

The Option 4b development plan consists of a series of successive investments designed to accommodate continued demand growth in the WUNI region through to 2055. While we have a higher level of confidence in the immediate investment horizon, this decreases over time due to forecasting uncertainties. For this MCP, our primary focus is on the near-term investments required between 2030 and 2035 (**Stage 2**). Table 2 summarises the proposed Stage 2 investments.[4]

Table 2: Proposed Stage 2 investments

Proposed Stage 2 investments	Estimated P50 cost (in real 2026 dollars)	Expected commissioning date
±150 Mvar STATCOM at HEN	$83.3m	2030
100 Mvar shunt capacitor at PAK	$14.5m	2035
OHW switching station upgrade[5]	$20.0m	2033
Duplex OTA–WKM A&B circuits (OHW–WKM section) and connect into OHW	$204.9m	2035
Total	**$322.8m**	

Our estimated project costs for the proposed Stage 2 investments are detailed in Tables 3 to 5.

Table 3: TEES cost estimate (STATCOM at Henderson substation), in real 2026 dollars

Cost category	Cost estimate for 150 Mvar STATCOM at HEN ($k)
Civil works	[redacted]
Primary plant	[redacted]
Cables	[redacted]
Protection	[redacted]
Secondary Works	[redacted]
STATCOM equipment (OEM)[6]	[redacted]
Design allowance	[redacted]
Transpower overhead	[redacted]

[4] Acronyms: Henderson (HEN), Ohinewai (OHW), Ōtāhuhu (OTA), Pakuranga (PAK), Whakamaru (WKM), Brownhill (BHL), Hautapu (HTU).

[5] The upgrade of the Ohinewai switching station to accommodate the new connection of the circuits of the OTA-WKM A and B lines is now reported as a separate project. It was previously included in the scope and cost of the duplexing project in the short list consultation.

[6] The estimate includes the confirmed STATCOM OEM tender price. This update is not material to the overall P50 estimate for the project nor the P30–P70 range.

Cost category	Cost estimate for 150 Mvar STATCOM at HEN ($k)
Contractor overhead	[redacted]
Environmental	[redacted]
Stakeholder engagement	[redacted]
Community Care Fund	[redacted]
Risk allowance	[redacted]
Total project cost (P50)	**83,349**
Lower bound (P30)	80,115
Upper bound (P70)	86,886

Table 4: TEES cost estimate (shunt capacitor at Pakuranga substation), in real 2026 dollars

Cost category	Cost estimate for 100 Mvar shunt capacitor at PAK ($k)
Civil works	2,009
Primary plant	6,891
Cables	18
Protection	707
Secondary Works	178
Miscellaneous	77
Design allowance	958
Transpower overhead	899
Contractor overhead	1,378
Environmental	95
Stakeholder engagement	310
Community Care Fund	17
Risk allowance	972
Total project cost (P50)	**14,509**
Lower bound (P30)	14,066
Upper bound (P70)	15,022

Table 5: TEES cost estimate (duplexing OTA-WKM A&B lines and OHW switching station upgrade), in real 2026 dollars

Cost category	Cost estimate for duplexing OTA-WKM A&B lines from OHW to WKM ($k)	Cost estimate for OHW switching station upgrade ($k)
Foundations	32,549	-
Towers	4,783	-
Insulator sets	5,400	-
Conductor and earth wire	18,186	-
Stringing	35,868	-
Clearance rectifications	14,923	-
Access and crossings	21,728	-
Miscellaneous	1,828	55
Storage, handling, security	1,012	-
Civil works	-	207
Primary plant	-	9,095
Cables	-	391
Protection	-	3,036
Secondary works	-	959
Communications	-	56
Design allowance	4,590	1,187
Transpower overhead	10,158	1,214
Contractor overhead	30,197	1,688
Environmental, Biodiversity	531	541
Property	14,093	-
Stakeholder engagement	1,420	260
Community care fund	890	30
Risk allowance	6,791	1,292
Total project cost (P50)	**204,948**	**20,009**
Lower bound (P30)	197,507	19,216
Upper bound (P70)	212,226	20,866

5 Cost changes since short list consultation

Since the short list consultation in January 2026, our cost estimates for the proposed Stage 2 investments have changed. The pure inflation effect of changing the basis year from 2025 to 2026 (June quarter) is approximately 4%, according to the reported CPI development.[7] Table 6 summarises the changes.

Table 6: Cost changes from short list consultation to MCP

Proposed Stage 2 Investment	Consultation Jan 2026 Cost (real 2025 dollars)	Proposal Oct 2026 Cost (real 2026 dollars)	Comment
100 Mvar shunt capacitor at Pakuranga substation	$13.3m	$14.5m	The cost change since consultation is due to an update in our cost database to real 2026 dollars including service provider resource rates for the new contract year.
150 Mvar STATCOM at Henderson substation	$80.3m	$83.3m	
Duplex OTA–WKM A&B southern section and Ohinewai switching station upgrade	$175.0m	$224.9m	The cost estimate for duplexing the OHW–WKM section of the OTA–WKM A and B lines has increased by approximately $50 million since the short list consultation. The cost estimate has been updated following completion of the solution study design. The increase is primarily due to construction learnings from the TKU–WKM duplexing project, identification of additional foundation remediation works, refinement of access and property requirements, and updated contractor and project overhead allowances.

We consider the updated cost estimates provide a more accurate expected cost of the proposed Stage 2 investments.

[7] Stats NZ, Consumers price index (CPI)

6 Anticipated future stages

The P50 cost estimates for potential future stages of the WUNI Upgrade major capex project are provided in Table 7. We are not seeking approval for the future stages as part of this MCP.

Table 7: Cost estimates for potential future stages (P50 cost excl. IDC and inflation)[8]

Potential future stage investments	Estimated P50 cost (real 2026 dollars)
Series compensation on the BHL-WKM line	$238.8m
Shunt capacitors at various locations in Auckland and Waikato (cost per 100 Mvar unit installed)	$15.4m
Series reactors on various lines (cost per unit installed)	$6.7m

[8] Expected timings of these investments are discussed in Attachment 4.

7 Major capex allowance

If cost recovery for the proposed investment is approved by the Commission, the Commission will also approve a maximum expenditure amount for the project, being the MCA.[9] The costs of the project will be recovered from Transpower's customers through regulated transmission charges (see Attachment 9).

The MCA is based on our P50 estimate of project costs for the proposed Stage 2 investments, meaning there is an equal chance that nominal capex (including CPI) plus IDC for the proposed Stage 2 investments will be higher or lower than the MCA.

Consistent with the incentive regime, we are committed to delivering this project as efficiently as possible. We propose applying the default major capex incentive rate of 15% to this project.

Interest during construction (financing costs)

Transpower has calculated IDC using:

- Transpower's forecast interest rates;
- expected commissioning dates;
- the assumption that expenditure occurs evenly throughout each quarter, or equivalently at the quarter midpoint; and
- the capital expenditure profiles for the proposed Stage 2 investments.

The capital expenditure profiles for the proposed Stage 2 investments follow the typical 'S' curve for projects of this nature, except for the duplexing works, where a customised cost curve has been used to better reflect the expected timing of expenditure.

Additional IDC of the Stage 2 preparatory work costs from Stage 1

Because the approved major capex project outputs for WUNI Stage 1[10] include preparatory works for Stage 2, including additional investigations, the investigation costs for the following proposed Stage 2 investments are covered by the approved Stage 1 preparatory work costs:

- 100 Mvar shunt capacitor at Pakuranga substation
- 150 Mvar STATCOM at Henderson substation
- Duplex OHW–WKM section of the OTA–WKM A&B lines (including OHW switching station upgrade).

The Stage 1 preparatory work costs will close by June 2027. Any continuing IDC for the preparatory work for the proposed Stage 2 investments from July 2027 until the relevant commissioning date will be part of the Stage 2 MCA as additional IDC.

Table 8 provides a summary of our MCA calculation along with a forecast annual expenditure breakdown.

---

[9] The Commission may also approve a maximum recoverable cost if there is an allowance for non-transmission solution opex or consequential opex. We are not seeking a maximum recoverable cost for Stage 2.

[10] Approved by the Commission in September 2020: Decisions and reasons paper.

Table 8: MCA and forecast annual cost allocation ($k)

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	Total
Capex (real 2026)	4,015	11,903	31,306	49,178	42,803	42,111	53,446	43,138	29,837	15,078	322,815
Inflation	58	476	1,948	3,986	4,336	5,286	7,873	7,250	5,769	3,183	40,166
Capex (nominal)	4,074	12,379	33,253	53,164	47,140	47,397	61,319	50,388	35,606	18,261	362,981
Interest during construction (IDC)	49	461	1,477	3,899	4,191	3,647	6,171	8,525	10,037	5,750	44,207
Additional IDC on Stage 2 preparatory works from Stage 1	-	88	182	191	162	130	135	141	147	76	1,253
Major Capex Allowance (MCA)	**4,122**	**12,928**	**34,912**	**57,254**	**51,493**	**51,174**	**67,626**	**59,054**	**45,791**	**24,087**	**408,441**

Table 9 summarises the expected project cost and MCA per proposed Stage 2 investment.

Table 9: Expected project cost and MCA per proposed Stage 2 investment

Proposed Stage 2 investments	Estimated P50 cost ($k, real 2026)	MCA (incl. inflation and IDC, $k, nominal)	Expected commissioning date
100 Mvar shunt capacitor at Pakuranga substation	14,509	18,155	2035
150 Mvar STATCOM at Henderson substation	83,349	95,831	2030
Duplex OTA-WKM A&B southern section	204,948	269,804	2035
Ohinewai switching station upgrade	20,009	24,651	2033
Total	**322,815**	**408,441**	

8 Project requirements and project management approach to achieve proposed major capex project outputs

8.1 Project requirements

At a high level, the works required to complete the installation of the shunt capacitor include:

- Detailed design
- Council consents (if required)
- Civil works for the platform construction
- Structural works including equipment support structures and foundations
- Electrical site works
- Supply and installation of primary and secondary equipment, such as protection relays, auxiliary relays, cabinets/panels and circuits as well as underground cables and transformers as required
- Communication and Human-Machine Interface (HMI) works
- Equipment testing and commissioning.

At a high level, the works required to complete the installation of the STATCOM include:

- Detailed design
- Council consents (if required)
- Civil site works for platform modification or construction
- Electrical site works
- Supply and installation of station bus work and gantries as required
- Supply and installation of primary equipment including disconnectors, circuit breakers, current transformers and outdoor junction boxes
- Supply and installation of secondary equipment including protection relays, cabinets and associated communications equipment as required
- Supply and installation of the STATCOM building, transformer, and related equipment.
- Equipment testing and commissioning.

At a high level, the works required to complete the Ohinewai switching station upgrade include:

- Detailed design
- Council consents (if required)
- Civil site works for platform modification or construction
- Electrical site works
- Supply and installation of station bus work and gantries as required
- Supply and installation of primary equipment including disconnectors, circuit breakers, current transformers and outdoor junction boxes
- Supply and installation of secondary equipment including protection relays, cabinets and associated communications equipment as required

- Equipment testing and commissioning.

At a high level, the works required to complete the duplexing of the OTA-WKM A and B lines include:

- Detailed design
- Council consents (as required)
- Environmental and sustainability impact assessments
- Landowner agreements
- Access track construction (as required)
- Tower foundation strengthening
- Tower raising and strengthening
- Reconfiguration of conductor tensions
- Modification and replacement of supplementary tower hardware including insulators
- Construction of new tower foundations and towers for the line deviations into the new switching stations
- Installation of new conductor.

8.2 Project management approach

The proposed Stage 2 investments will be managed using Transpower's standard project delivery framework, with additional oversight to reflect the size and complexity of this project. Key elements of the approach include:

- Governance oversight
- Project planning and scheduling
- Contract management
- Cost and risk management
- Technical reviews
- Performance monitoring and reporting.

Transpower will allocate experienced management and technical resources to:

- Monitor cost performance against budget
- Track project milestones to ensure timely delivery
- Ensure the scope and quality of deliverables meet the required standards.

Factors that may affect Transpower's ability to achieve the proposed MCP outputs include:

- Failure to secure required consents for the project. This is largely outside Transpower's control, but we have significant experience with consenting authority processes.
- Unforeseen changes to electricity market operations limiting our ability to secure the required system outages. This is largely outside Transpower's control, but we consider it highly unlikely to impact this project as we plan and communicate outage requirements to the market in advance.
- Major disruptions to global supply chains impacting our ability to secure internationally sourced materials. This is largely outside of Transpower's control but can be partially mitigated by ensuring long lead-time items are ordered sufficiently far in advance to not impact delivery timelines.

By applying robust project management practices and proactively mitigating risks, Transpower aims to deliver this project on time, within budget, and to the required quality standards.



TRANSPOWER