

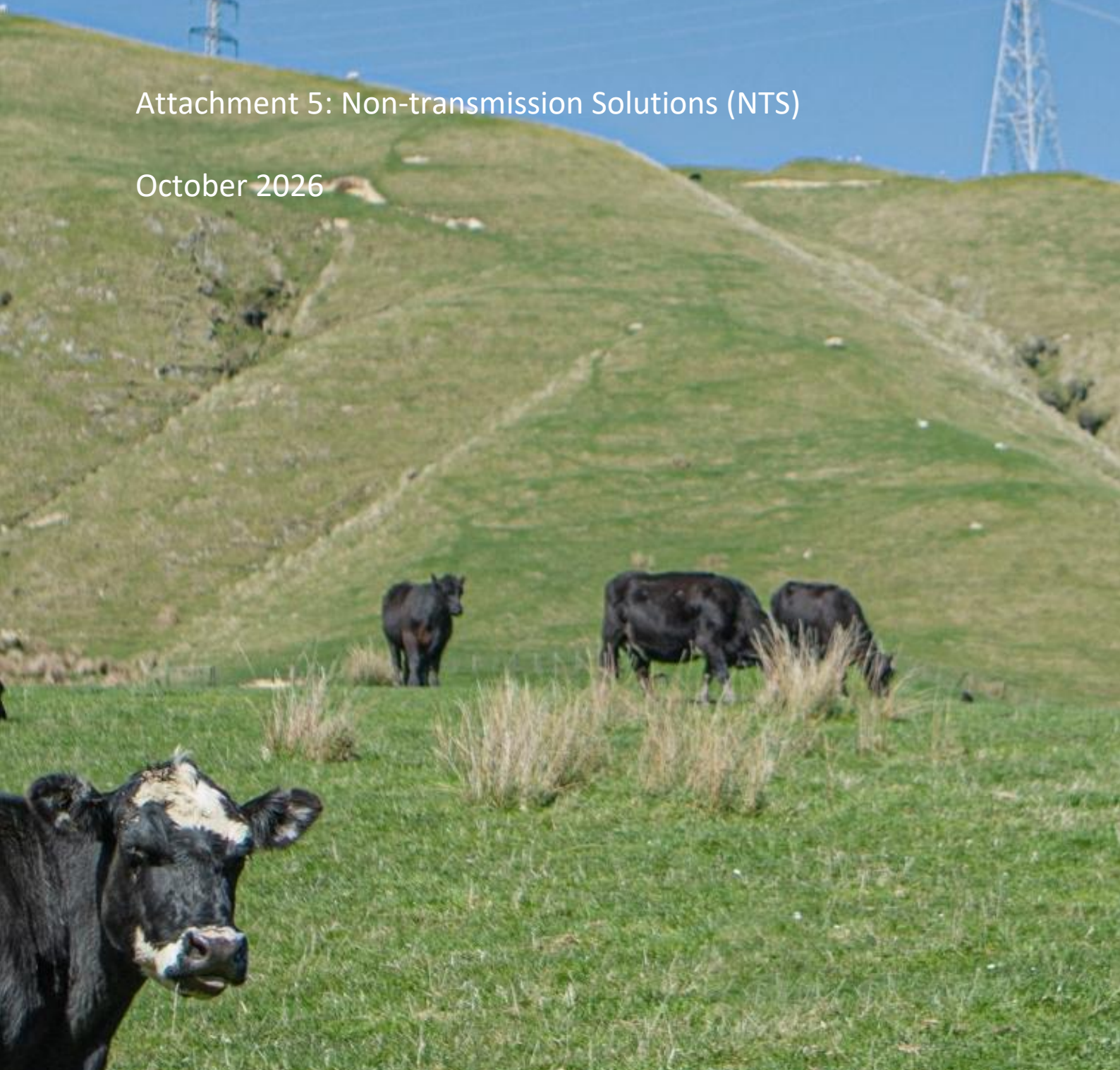


TRANSPOWER

Waikato Regional Interconnection Capacity (WRIC): Major Capex Proposal Shortlist Consultation

Attachment 5: Non-transmission Solutions (NTS)

October 2026



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1 Overview

Transpower is committed to considering non-transmission solutions (NTS) in its investment decision-making. NTS can replace or defer the need for transmission investment through grid support arrangements. Examples include batteries and commercial agreements to reduce electricity load during periods of high demand.

The scale of expected electricity demand growth in the Waikato 110 kV network means NTS are unlikely to eliminate the need for investment. However, NTS may help defer interconnection investment, manage demand uncertainty, and reduce delivery risks associated with this MCP.

Flexibility service providers (FSPs) interested in providing NTS solutions or services to meet the needs identified below are requested to complete and return the indicative Request for Interest (RFI) response form included in this Attachment 5.

2 Need

The primary driver for investment is the need to maintain interconnection capacity and meet N-1 reliability requirements on the Waikato 110 kV network.

This need emerges from 2030 and is addressed by the preferred option: an additional 220/110 kV interconnecting transformer located at a new Hamilton East substation. In addition to meeting the interconnection capacity need, the preferred option also helps maintain voltage stability on the Valley Spur 110 kV line from 2035¹, deferring the counterfactual need for a third HAM–WHU circuit.

When considering non-transmission solutions (NTS), it is therefore important to recognise both aspects of the interconnection investment's value. Any NTS must address the interconnection capacity and N-1 reliability requirements on the Waikato 110 kV network. Longer-term NTS may also provide additional value where it can defer, reduce, or provide benefits equivalent to later Valley Spur investment required to maintain voltage stability.

The value, timing, and volume of NTS required to defer the preferred option are discussed in Section 3.

¹ Note that the need date for investment in a third HAM-WHU circuit is 2034, with first voltage exceedances expected in 2035.

3 Non-transmission solutions

3.1 Process

If FSPs express interest through this shortlist consultation and Request for Interest (RFI), Transpower plans to apply for an NTS allowance as part of WRIC MCP's Investment Proposal and will seek to secure firm proposals through a subsequent Request for Proposal (RFP) and procurement process should a viable economic solution be proposed.

If credible NTS opportunities are identified through the procurement process, then Transpower will seek to defer the major investment components. This decision will be gauged on an assessment of revised load growth forecasts, including any delays to projected step-loads. Following this, Transpower will closely monitor load growth relative to the projected commissioning date.

Note that if no economic NTS option is found, or if the investment need changes such that no NTS solution is required, the funding will not be spent.

3.2 Deferral value

To estimate the potential value of NTS, we have calculated indicative upper and lower bound estimates of NTS deferral values. The upper bound assumes all MCP capital expenditure can be deferred, while the lower bound assumes only a portion can be deferred. Given the long lead times for transmission planning and procurement, and the underlying grid supply risk driving the investment need, some expenditure is likely to be committed before NTS can be confirmed. As a result, the achievable deferral value is likely to be less than would be achieved if the full project cost could be deferred.

The lower bound assumes that certain major project components² will need to be procured before NTS opportunities are secured, although some procurement activities may be capable of being paused. The project would continue to assess deferral opportunities, with the value of NTS dependent on when commitments can be secured relative to key project delivery milestones.

² This lower bound assumes that a substantial portion of 220 kV and 110 kV primary plant equipment would need to be purchased ahead of NTS procurement, including the interconnecting transformer, circuit breakers, earth switches, current transformers, capacitive voltage transformers (CVTs), earthing transformers, and associated busbar equipment.

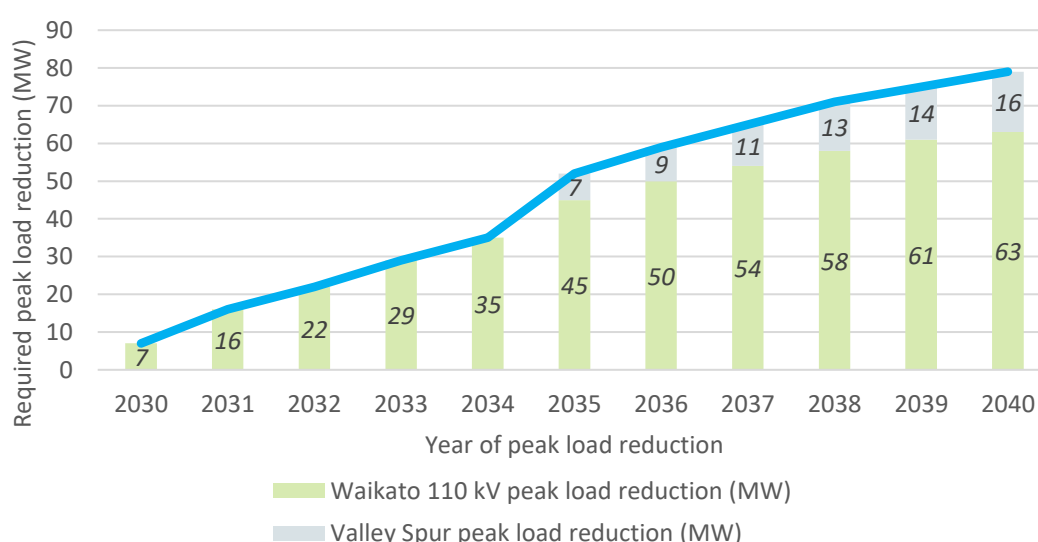
Table 1: Cumulative benefit of deferral (2026 \$m)

Years investment is deferred from 2030	1	2	3	4	5	6	7	8	9	10	11
Maximum indicative cumulative present value of deferral (\$m) ³	\$2.0	\$4.0	\$5.8	\$7.6	\$9.2	\$10.8	\$12.3	\$13.8	\$15.1	\$16.4	\$17.7
Minimum indicative cumulative present value of deferral (\$m)	\$1.2	\$2.3	\$3.4	\$4.4	\$5.4	\$6.3	\$7.2	\$8.0	\$8.8	\$9.6	\$10.3

3.3 Peak load reduction

The annual required peak load reduction over time is shown in the following chart for Waikato 110 kV GXP. This represents the MW reduction that would be required to defer our preferred option. For example, if 7 MW of NTS is provided on the Waikato 110 kV network in 2030, the Hamilton East interconnector project could be deferred by one year. The realisation of these values is contingent on the actual peak load reduction requirement at Waikato 110 kV GXP from 2030 onwards. This requirement will be reviewed as Transpower updates its peak demand forecasts, and NTS participants will be advised of any changes.

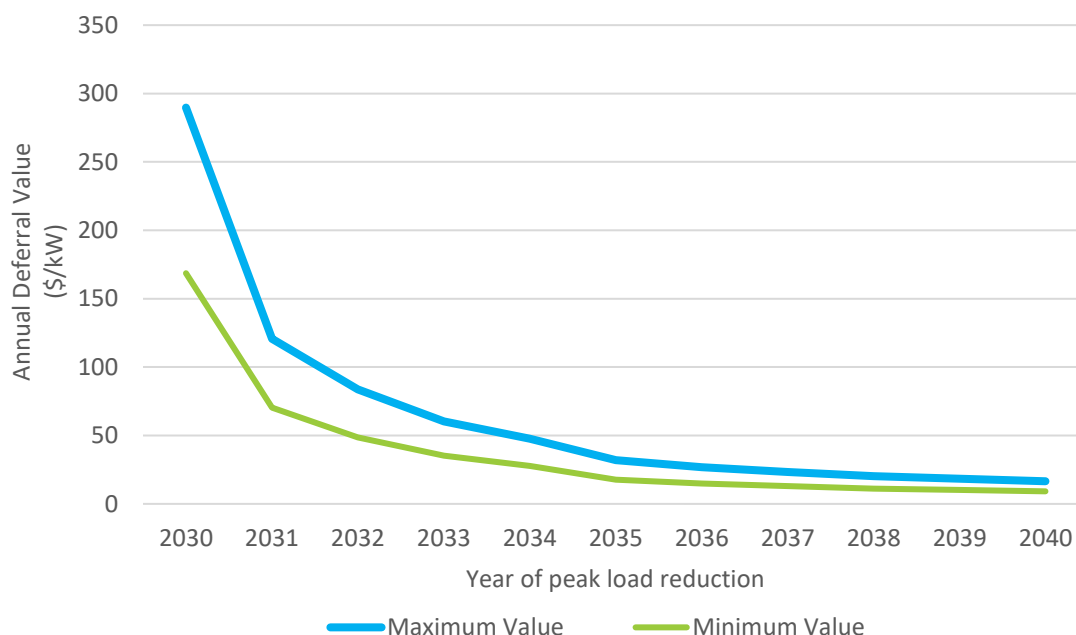
Figure 1: Required peak load reduction by year – Waikato 110 kV



³ Note that this NTS deferral value is the same across the Waikato 110kV network, including on the Valley Spur

Comparing the annual present value of deferral against the required peak load reduction gives an indication of the value of the deferral in \$/kW per year. We have calculated an indicative upper and lower limit of value for NTS providers below. This NTS value (\$/kW) is calculated using the maximum load reduction required in each year's peak period.

Figure 2: Maximum annual deferral value per kW of peak load reduction



3.4 Exceedance heat maps

The following heat map charts show when and how often capacity limit exceedances are expected to occur in years spanning the period from 2030 to 2040. The results indicate that exceedances initially occur during morning and evening peak demand periods in winter, before progressively spreading into the shoulder seasons over time.

These heat maps can be interpreted alongside Figure 1 to estimate the volume of NTS required. For example, Figure 3 shows that during the month of August 2030, three half-hours⁴ between 6:00 am and 7:00 am are expected to exceed the N-1 interconnection capacity limit. Figure 1 shows that these exceedances reach up to 7 MW, giving an indication of the NTS capacity required during these periods.

⁴ Demand forecasts for system planning are made on a half-hourly basis. The heat maps have compressed this to display exceedances for each hour.

Figure 3: Hourly exceedance count heat maps, 2030 - 2040



2033	HALF-HOUR EXCEEDANCE COUNT												33
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	hhs
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00													0
06:00 - 07:00								12					12
07:00 - 08:00							1	9					10
08:00 - 09:00													0
09:00 - 10:00													0
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00													0
15:00 - 16:00													0
16:00 - 17:00							1	3					4
17:00 - 18:00								7					7
18:00 - 19:00													0
19:00 - 20:00													0
20:00 - 21:00													0
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

2034	HALF-HOUR EXCEEDANCE COUNT												55
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	hhs
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00													0
06:00 - 07:00						1		15					16
07:00 - 08:00							4	12					16
08:00 - 09:00													0
09:00 - 10:00													0
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00													0
15:00 - 16:00													0
16:00 - 17:00						1		5					8
17:00 - 18:00							1	13	1				15
18:00 - 19:00													0
19:00 - 20:00													0
20:00 - 21:00													0
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

2035	HALF-HOUR EXCEEDANCE COUNT												190
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	hhs
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00													0
06:00 - 07:00							6	7	25	2	2		42
07:00 - 08:00							4	14	23				41
08:00 - 09:00								2	4				6
09:00 - 10:00													0
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00													0
15:00 - 16:00									2				2
16:00 - 17:00						2	12	15	1				30
17:00 - 18:00						2	19	30	2				53
18:00 - 19:00							2	13	1				16
19:00 - 20:00													0
20:00 - 21:00													0
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

2036													286
HALF-HOUR EXCEEDANCE COUNT													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	hhs
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00								2					2
06:00 - 07:00					7		10	32	5	7			61
07:00 - 08:00					5		17	29	2	1			54
08:00 - 09:00							3	6					9
09:00 - 10:00													0
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00													0
15:00 - 16:00							1	3					4
16:00 - 17:00					5		19	19	2				45
17:00 - 18:00					8		29	33	5				75
18:00 - 19:00					1		7	24	2				34
19:00 - 20:00								2					2
20:00 - 21:00													0
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

2037													398
HALF-HOUR EXCEEDANCE COUNT													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	hhs
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00								5	1				6
06:00 - 07:00					7		11	33	6	10	3		70
07:00 - 08:00					6	1	21	33	4	4			69
08:00 - 09:00							6	11					17
09:00 - 10:00													0
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00													0
15:00 - 16:00							1	8					9
16:00 - 17:00					8	4	22	25	6				65
17:00 - 18:00					12	4	35	41	10				102
18:00 - 19:00					4		17	28	2				51
19:00 - 20:00							2	6	1				9
20:00 - 21:00													0
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

2038													555
HALF-HOUR EXCEEDANCE COUNT													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	hhs
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00								9	1				10
06:00 - 07:00					10	1	18	40	12	16	4		101
07:00 - 08:00					10	2	28	41	6	7	1		95
08:00 - 09:00					2		9	15					26
09:00 - 10:00								1					1
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00								1					1
15:00 - 16:00					1		3	8	2		1		15
16:00 - 17:00					11	6	27	33	8				85
17:00 - 18:00					19	9	40	47	14				129
18:00 - 19:00					6	1	25	32	6				70
19:00 - 20:00							4	17	1				22
20:00 - 21:00													0
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

2039													hhs
HALF-HOUR EXCEEDANCE COUNT													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00					1			9	1	1			12
06:00 - 07:00			1		10	1	22	41	17	25	14		131
07:00 - 08:00					10	2	29	42	9	12	2		106
08:00 - 09:00					2		17	20	1	1			41
09:00 - 10:00							1	2					3
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00								3					3
15:00 - 16:00					1		5	14	4		3		27
16:00 - 17:00					14	6	30	37	11	1	2		101
17:00 - 18:00					21	12	44	49	15	1			142
18:00 - 19:00					8	4	32	34	10				88
19:00 - 20:00					1		9	22	2				34
20:00 - 21:00								3					3
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

2040													hhs
HALF-HOUR EXCEEDANCE COUNT													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
00:00 - 01:00													0
01:00 - 02:00													0
02:00 - 03:00													0
03:00 - 04:00													0
04:00 - 05:00													0
05:00 - 06:00					1			11	1	4			17
06:00 - 07:00			1		13	1	23	43	20	31	22		154
07:00 - 08:00					12	4	36	42	16	16	4		130
08:00 - 09:00					4	1	22	28	1	1			57
09:00 - 10:00							2	4					6
10:00 - 11:00													0
11:00 - 12:00													0
12:00 - 13:00													0
13:00 - 14:00													0
14:00 - 15:00								3					3
15:00 - 16:00					1		8	17	4	1	7		38
16:00 - 17:00					15	9	37	41	13	3	8		126
17:00 - 18:00					26	15	46	50	21	4	1		163
18:00 - 19:00					11	5	39	41	14	1			111
19:00 - 20:00					3		15	28	3				49
20:00 - 21:00							3	7					10
21:00 - 22:00													0
22:00 - 23:00													0
23:00 - 24:00													0

4 Request for interest

This Request for Interest seeks to identify whether there is sufficient interest and capability (current or future) from Flexibility Service Providers to investigate non-transmission solutions (NTS) or other alternatives as part of this shortlist consultation, before identifying a preferred approach to support the needs of the Waikato 110 kV network.

Firm proposals, firm prices, negotiated contract positions, and finalised delivery commitments are not required at this stage, however, responses to this RFI will inform Transpower's analysis of the potential for a Non-Transmission Solution alongside any capital investment, and may be used for consideration of whether a Request for Proposals (RFP) is warranted.

Interested parties are encouraged to:

1. Complete all sections of the Response Form.
2. Provide table information for each location or service option you may be interested in providing services for.
3. Send this completed form to Grid.Investments@transpower.co.nz before the close of this consultation on 2 December 2026.

Note that all submissions will remain confidential.

Part A: Respondent Information

Please provide information about your organization and contact details for your organization's point of contact.

RESPONDENT INFORMATION	
Organisation name	
Whether respondent is a partnership or joint venture, list names of partners, partner organizations, or joint venture parties	
Street Address	
Postal Address	
Contact Person	
Telephone Number (Point of Contact)	
Email address (Point of Contact)	

Part B: Request for Interest Questions

Category	Response
Flex ID / Name (if applicable):	
Proposed block capacity (kW or MW) Please identify unit; minimum 0.5 MW preferred	
Please describe flexibility service solution type(s) available. (e.g. BESS, controllable demand, load shift, etc.) Note: isolation of NTS for safety of personnel and assets may be required	
Are you able to provide an NTS solution for more than a single year? If yes, for how many years can your solution meet the growing NTS MW capacity need signalled in Figure 1 in section 3.3, and for the months and number of calls per month indicated in section 3.4 (heat maps) of this Attachment 5? (e.g. up to 7 MW at least three days in August 2030 between the hours of 6-7 AM, and up to 35 MW in 2034 May, July, and August, both morning and evenings)	
Indicative initial maximum duration of sustained response (per block type) over time	
Can your solution/system(s) respond to a grid event instruction, or would you seek to provide an alternative response/approach? Please explain.	

Is the flexibility service capacity contemplated by the respondent also used or proposed for another NTS obligation? Yes/No	
Are you able to restore the flexibility services offered following the completion of a grid event (e.g. time to charge a battery or recover load) to meet both morning and evening or day to day identified needs?	
Please provide an indicative availability payment required- \$/month (monthly payment irrespective of whether a grid event occurs.)	
Please provide an indicative event payment required - \$/MWh (per MWh of provided response during any called event.)	
Pre-event call notice period • Up to 24 hours but not less than 4 hours (Slow) • Up to 3.5 hours but not less than 2 hours (Medium) • <2 hours (Fast)	
Other services or flexibility service scope that could be offered	
Can your service be operational and ready for testing by February 2030 without dependencies? Yes/No If no, what risks or uncertainties could affect your ability to deliver the indicative service? How would you expect to manage them?	
What metering, telemetry, or operational data, or other evidence could you provide to demonstrate availability and performance at a later stage?	

Are there any material regulatory, commercial, safety, cyber, or operational constraints that Transpower should understand before deciding whether to proceed to a later RFP stage?	
Would you be interested in participating in further engagement, such as a workshop or one-on-one discussion related to this RFI and the needs identified herein? (contact information from Part A will be used)	
Please briefly describe your organisation's relevant experience delivering, operating, or aggregating flexibility services, demand response, distributed energy resources, embedded generation, or comparable energy services.	
What level of information or engagement would you need from Transpower or other parties to decide whether to participate in any subsequent formal Request for Proposal (RFP)?	
Please provide high-level commercial information or anything else deemed relevant here.	

