TRANSPOWER

Upper South Island Upgrade Stage 1: Major Capex Proposal

Attachment 8 - Approach to non-transmission solutions

August 2025

Contents

1 Approach to non-transmission solutions

Non-transmission solutions (**NTS**) may play a role in deferring transmission investment, managing uncertainty associated with step loads in demand, and mitigating risks of delays in constructing transmission assets in the Upper South Island (**USI**).

While the provision of transmission alternatives is encouraged within the Capex IM, these have historically been challenging to achieve, given their required scale and limited time available to implement. Compounding this is the time between the decision to defer investment and the need to manage any resultant supply risk, in this case out to commissioning in the early 2030s. In February 2024, we issued a request for proposals for non-transmission solutions which is summarised in Section 2 of Attachment 7.

The Commerce Commission acknowledges the currently limited number of NTS providers, as well as their current scale, and have expressed support of Transpower's alternative approach to establish a competitive process to make these funds available to support building NTS capacity with qualifying providers. It is acknowledged that building sufficient NTS scale to manage the increased risk resulting from 12 months of transmission deferral would require the support of an estimated 2 to 3 years NTS growth programme in advance of the projected need date.

For the USI MCP, a 12-month deferral would have a capital spend deferral value of approximately $7.0 million. This amount is in addition to the standard P50 cost used in the Major Capex Allowance (**MCA**). We use this value as an estimate of the cost of an NTS solution to manage the peak capacity for 1 year.

To determine the capital expenditure deferral value, we assumed the following:

- All capital expenditure can be deferred by 1 year. This was seen as a realistic amount of time to defer expenditure, based on the project need and timeline. Note that depending on demand growth at the local grid exit points as well as major procurement lead times, not all components of this investment programme may end up being able to be deferred.
- The project would look for deferral options and these would need to be committed before key milestones. If a milestone for a particular upgrade has passed, then that portion of capital deferral value would no longer be available to fund NTS.
- If no economic NTS option is found, the funding will not be spent.

Section 3 provides tables of the capex deferral value (assuming a discount rate of 5%) for each of the interconnection investments for the proposed investment (Option 2). All values presented are in real terms discounted at a 5% discount rate to 2025 dollars.

To provide a net benefit relative to the proposed investment, an NTS provider would need to provide the required deferral for less than $7.0m (2025 $m).

Section 4 gives an indication of the peak load reduction (MW) required to ensure that we can defer investment.

2 Process

Transpower will continue to seek NTS opportunities to manage uncertainties in demand and delivery risk. If the opportunity for deferral is realised, then Transpower will defer advancing the major investment components by a year. This decision will be gauged on an assessment of revised load growth forecasts, including delays to projected step-loads. Following this, Transpower will closely monitor load growth with an eye to the projected commissioning date.

If these forecasts indicate that NTS will be required to manage risk, then we will launch a two-stage Grid Support Contract (**GSC**) RFP process: the first stage would be aimed at enabling NTS providers to build capacity and the second support contract/s would be offered closer to the commissioning date and aimed to deliver real-time operational responses. Note that most of the funds will be reserved for this operational use.

If, following the decision to defer the investment for 12 months, it is forecast that no NTS will be required to manage supply risk prior to the MCP commissioning then no operational GSC will be contracted.

3 Deferral value tables

The capex deferral benefit can be read off the first table, below. For example, suppose an NTS provider could defer the MCP by a year. Then the capex deferral benefit would be

Deferral benefit = 1.72 + 1.23 + 1.31 + 2.20 + 0.45 + 0.04 = 6.96 (2025 $m)[1]

Annual present value of deferral (2025 $m)

	Years investment is deferred										
	0	1	2	3	4	5	6	7	8	9	10
Orari switching station	0.00	1.72	1.63	1.56	1.48	1.41	1.34	1.28	1.22	1.16	1.11
Rangitata switching station	0.00	1.23	1.18	1.12	1.07	1.02	0.97	0.92	0.88	0.84	0.80
Lines turn ins	0.00	1.31	1.25	1.19	1.14	1.08	1.03	0.98	0.93	0.89	0.85
TTU NWD-RTA-1 90C & ORI-RTA 100C	0.00	2.20	2.09	2.00	1.90	1.81	1.72	1.64	1.56	1.49	1.42
2 x 75 Mvar shunt cap @ ORI220	0.00	0.45	0.43	0.41	0.39	0.37	0.36	0.34	0.32	0.31	0.29
AOVCS	0.00	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02
Total	**0.00**	**6.96**	**6.62**	**6.31**	**6.01**	**5.72**	**5.45**	**5.19**	**4.94**	**4.71**	**4.48**

Cumulative benefit of deferral (2025 $m)

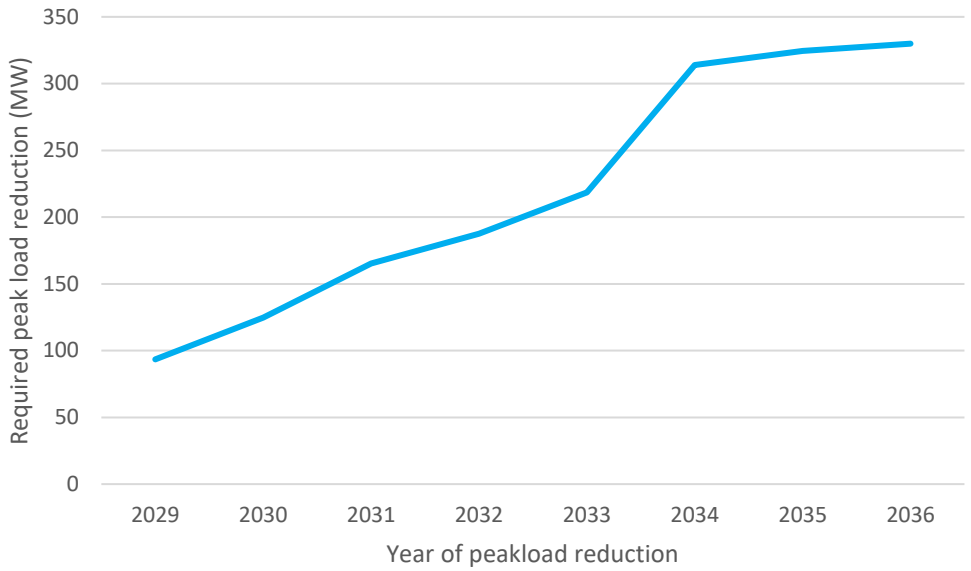
	Years investment is deferred										
	0	1	2	3	4	5	6	7	8	9	10
Orari switching station	0.00	1.72	3.35	4.90	6.39	7.80	9.14	10.42	11.64	12.80	13.91
Rangitata switching station	0.00	1.23	2.41	3.53	4.60	5.61	6.58	7.50	8.38	9.21	10.01
Lines turn ins	0.00	1.31	2.57	3.76	4.89	5.98	7.01	7.99	8.92	9.81	10.66
TTU NWD-RTA-1 90C & ORI-RTA 100C	0.00	2.20	4.29	6.29	8.19	10.00	11.72	13.36	14.93	16.42	17.83
2 x 75 Mvar shunt cap @ ORI220	0.00	0.45	0.89	1.30	1.69	2.06	2.42	2.76	3.08	3.39	3.68
AOVCS	0.00	0.04	0.07	0.11	0.14	0.17	0.20	0.23	0.26	0.29	0.31
Total	**0.00**	**6.96**	**13.58**	**19.89**	**25.90**	**31.62**	**37.07**	**42.26**	**47.21**	**51.91**	**56.40**

[1] The correct number is $6.96m not $6.95m - the numbers are rounded in this table and in the input to this calculation which leads to a minor rounding difference

4 Required peak load reduction

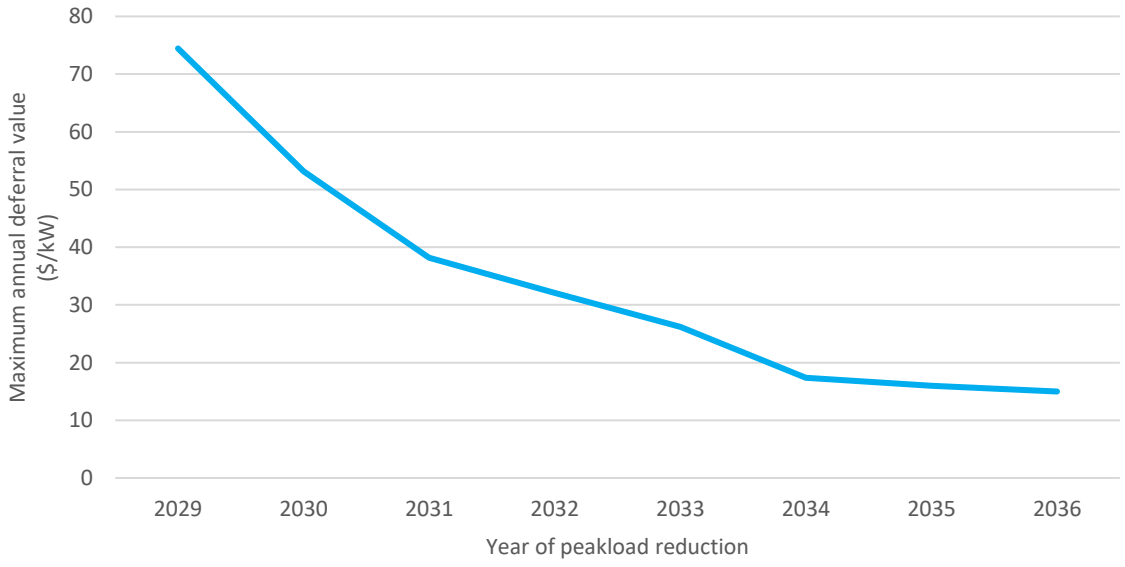
The annual required peak load reduction over time is shown in the following chart for USI GXPs. The realisation of these values is contingent on confirmation, in prior years, of the actual peak load reduction being available from year 2029 onwards for USI GXPs.

Figure 1: Required peak load reduction – USI



Putting 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. This value could be considered as the upper limit to pay to suppliers of NTS.

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



In the event Transpower supports the building of NTS capability ahead of the need it will be necessary to predefine the period of investment ahead of the deferred commissioning dates for the relevant investments, e.g., 2-3 years, to work out the cost of risk management which could be distributed to the suppliers of NTS. Note that the presented figures represent the maximum value in the case that the investments can be deferred now through reliance on future peak load reduction.