

Upper North Island Demand-Side Initiatives **Factsheet**

What are demand-side initiatives?

In the context of power supply, these are initiatives that occur at the consumers' end of the power supply - to disconnect non-essential electrical load at certain times of day and year. In the upper North Island, participants would be paid to have their non-essential load disconnected remotely at times when we are having difficulty meeting the full system load.

Why do you need demand-side initiatives in the upper North Island?

We have some \$1.7 billion worth of projects on at the moment to deliver more capacity to the upper North Island. However, the region continues to grow. Demand-side initiatives can be less expensive than building yet more assets (in this case voltage support equipment).

Will demand-side initiatives still be needed once your major projects are completed?

The upper North Island has an enduring need for voltage support because of its reliance on long transmission lines from the south for much of its power. This need continues regardless of the other projects that Transpower has underway like the NIGUP or NAaN. Demand-side initiatives can defer our investment in voltage support equipment, and so they can also form part of the long-term mix of solutions for the upper North Island.

What sort of load would be targeted by these initiatives – could it include residential consumers?

Initially, we would really be looking to target and secure industrial and large commercial load that can be switched off for a few hours at a time without affecting normal business operations. Examples include refrigeration plants and some industrial processes. Ultimately, there may be scope for a more mass consumer product, but this needs much more investigation, which we'll undertake over the next couple of years.

How would it actually work?

We expect that it would work similarly to the way hot water is controlled for residential consumers already, although we envisage the equipment would be much smarter and much more dynamic. As the transmission owner, we are more interested in the outcomes rather than the means, so our role will be to specify exactly what we want and leave the solutions and the technology to the market to deliver.

How are you funding this?

We obtained Electricity Commission approval earlier in the year to proceed with a \$110 million programme of work, part of which includes these demand-side initiatives.

How much load will you need to secure?

We're still scoping our requirements but would be looking to secure about 60 MW (or equivalent to one year's load growth for the Upper North Island region).

But won't demand just increase when the disconnected load is reconnected again?

The critical times for us only last for a few hours. We just need to move some load away from those times. The graph below shows typical winter and summer daily demand profiles. As can be seen, winter peak demand tends to be in the early morning and early evenings and are quite short. Summer peak demand is much flatter, but there may still be opportunities to move load away from the early afternoon.

Have you done this elsewhere?

We did run a trial in the upper South Island over 2007 and 2008 which proved that demand side response can be used to reduce loading on the transmission grid at peak times. As a result of that trial, local distributors in the region now coordinate the management of their ripple controlled water heating. This has effectively reduced Christchurch winter peaks by at least 3% and deferred the next incremental grid upgrade (worth about \$40 million) by two years.

What is the timing for these initiatives?

We will look to have our first limited demand side trial in the summer of 2011/12, with it becoming more widespread for the region from the summer of 2012/13. By this later date we will also look to trial a more mass response initiative.



TRANSPOWER

Keeping the energy flowing

Transpower House
96 The Terrace
PO Box 1021
Wellington 6140
New Zealand
P 64 4 495 7000
F 64 4 495 7100
www.transpower.co.nz

