Because sometimes we need your help to lighten the load.

A GUIDE TO THE PROGRAMME.
By helping us lighten the load, we’ll get the power needed to the right place.

CONTENTS

01. WHAT IS DEMAND RESPONSE?

OVERALL BENEFITS FOR ELECTRICITY CONSUMERS AND TRANSPower

02. PRE-REQUISITES

06. GENERAL CONSIDERATIONS

08. FREQUENTLY ASKED QUESTIONS
What is demand response?

Demand response allows electricity consumers to respond to a signal from an organisation, like Transpower, to reduce their electricity demand for a period of time in exchange for a payment.

It’s a win-win situation where consumers get compensated for their involvement and see lower charges long term, while helping Transpower manage demand on the grid.

This guide provides an introduction to the basic demand response concepts from a consumer’s perspective.

Demand response can allow Transpower to better manage utilisation of our transmission network, including when there are substantial short-term increases in peak electricity demand. Without grid management mechanisms like demand response such changes may trigger the need for additional transmission investment.

Managing peak demand levels is an alternative to transmission investment. There may be a situation where we forecast that the network will need new investment in five years because electricity demand in the region is predicted to grow substantially. We could defer this investment and the costs to consumers if we use demand response at peak times to slow down that peak load growth in a region.

Demand response is likely to revolutionise how we manage the grid in the future and provide substantial benefits to our customers and therefore the end-consumer.

Overall benefits for electricity consumers and Transpower

The benefits from reducing peak demand include:

**Lower costs to all customers**

Any reduction in peak demand can result in reduced grid and generation investment. Less transmission and generation infrastructure means lower electricity costs for end consumers.

**Increased reliability of service**

If we can switch off non-essential load or turn on standby generation in response to transmission or generation failures, we can maintain electricity supply to customers’ essential services.

**Reducing our carbon footprint**

Continuing to ‘expand’ the current grid will substantially increase the footprint of the grid which we would like to limit where possible.

**Get paid for participation**

Those consumers who enrol in demand response programmes will receive payment for participation.
Pre-requisites

Here is a checklist of the pre-requisites for being a participant in the programme.

Do you have peak demand of at least 20 kW?

- [ ] yes
- [ ] no

Do you have a Time of Use meter?

- [ ] yes
- [ ] no

It is likely that your business will easily meet this requirement. If you are unsure what your peak demand is, your electricity retailer should be able to help. It’s important to understand your profile of electricity usage when you think about participating in the programme.

Before registering for the programme, you need to confirm that you have a Time of Use (TOU) meter. A TOU meter measures your electricity consumption every 30 minutes.

You will also need to have access to the meter data after each demand response event (DR event) so that you can upload it into our Demand Response Management System. That’s the start of the measurement and verification process. That in turn leads into the payment process, so it’s important that this process is both timely and accurate.

You will be paid for your demand response based on the difference between what your demand was during the DR event and the estimate of what your electricity demand would have been had there not been a DR event. The most appropriate methodology for measurement and verification is selected when you respond to our Request for Proposal to register for the programme. A list of the methodologies and how they work is included in ‘Demand response – How to guide’ on our website.
Your meter can be the revenue meter (usually managed by your electricity retailer) or a third party “check” meter that directly measures your output, if you are using standby generator. If you are unsure if your meter measures data in 30 minute intervals, then contact your electricity retailer or third-party meter provider.

It is recommended that you obtain one year’s historic meter data to help you understand your building’s general electricity demand profile.

“The Transpower Demand Response programme was a real opportunity to use the generators to create income.”

David Francis,
Energy Specialist for
Nelson Marlborough DHB
Demand Response App

- Find out more about demand response
- Check out events and bid to participate
- Send event info to others through email or calendar invites
- View your track record

Energy explained

Demand
The power (electricity) that something is using.

Peak demand
The highest point of electricity consumption, usually measured in half-hour periods.

MWh
A megawatt (MW) is a unit for measuring power (it’s one million watts).

A megawatt hour (MWh) is equal to one million watts of electricity used continuously for one hour.

(1 MWh is about the amount of electricity 330 homes use in one hour.)

RFP
A Request for Proposal is a solicitation to potential suppliers to submit business proposals, often through a bidding process.

Registration cycle
We manage applications to our programme by having open and closed periods for registration, called cycles. During a registration cycle, we make the RFP documents available for interested parties to complete. They must be completed before the cycle closes. The next cycle may be some months away.
CASE STUDY:
Nelson Hospital’s emergency back-up generators

Nelson Marlborough DHB installed powerful new generators at Nelson Hospital in 2009 – and part of the business case was the potential for revenue generation. David Francis, Energy Specialist for Nelson Marlborough DHB, said that any measures to generate additional revenue flow ultimately benefits patients.

“The Transpower Demand Response programme was a real opportunity to use the generators to create income,” he said.

Mr Francis said that the key to the DHB’s success in the programme was excellent preparation.

“We needed to understand where we fitted into the big scheme, what we could offer using our generators, quantify what power was available and price it appropriately and develop very robust internal workflows and processes.

“This was something very different, particularly for a hospital and, understandably, there were perceptions of risk. But we have to run the generators regularly to ensure the batteries are charged and diesel is turned over so why not make money out of it?”

The DHB signed up to the Price Responsive and Security programmes, taking part in 13 of the 20 events completed during the course of the programme and were paid approximately $60,000 for participating. The additional fuel costs were around $4,500.

“It went without a hitch,” said Mr Francis. “Our electrical team were very supportive of the scheme, which was critical to its success. Transpower would notify me via the automated system, I would alert our electricians and they would run the generators for the agreed time.

“As well as the financial benefits to the DHB, our team is now more experienced in working with our generators and confident of the machinery performing well in an emergency. We’re also exploring further opportunities, including taking part in the next Transpower Demand Response programme.”

Quintin Tahau, Demand Response Manager for Transpower New Zealand, said: “The DHB was a star performer. They have great energy awareness and are passionate about energy efficiency and driving costs down. We commend Nelson Marlborough who saw this as an opportunity and it resulted in a win-win situation for both the DHB and the National Grid.”
General considerations

This section lists general considerations you may like to investigate before responding to our Request for Proposal.

1. Do you have the ability to respond to a direct response call?
   - Yes
   - No

2. Do you plan to automate or manually operate your response?
   - Manual
   - Automatic

3. If using a standby generator, do you have the right resource consent?
   - Yes
   - No

4. Have you considered integrating DR with your generator’s maintenance schedule?
   - Yes
   - No

DR Events typically last between 30 minutes and two hours. They are scheduled to start and end on the hour or half past the hour. We will always tell you the start and end times when we notify you of a DR Event. You must be able to respond for the entire duration of a DR Event if you want to participate.

Responding to a DR Event will require some internal communication and co-ordination processes to be set up – it is important that you are prepared to manage these communication and co-ordination processes.

All communication about DR Events between us and you is via the internet using our Demand Response Management System. We have a demand response App which is the easiest way to participate.

We let you know about an event at least three hours in advance. You choose to use either email, web services (for automation), the App, or monitor the Demand Response Management website.

Since we give you at least three hours’ notice, you can choose to respond manually or automatically by using our web services through your building management system.

If you have a standby generator, then it is likely you have already gone through a resource consent process. Prior to completing our Request for Proposal response for the programme, you should be familiar with the conditions of your consent to ensure that you are aware of your obligations under the relevant local body and regional bylaws. Consents of this type cover conditions including: operating, monitoring, reporting and reviewing performance of the generator.

Organisations that have participated in our earlier demand response programmes with their standby generators have worked it into their normal maintenance and operating procedures. This is an important consideration to ensure that the use of your generator stays within the manufacturer’s operating guidelines. Regular testing may also be a warranty condition.
As part of making it easier to participate in our programme, we have provided some case studies to demonstrate how other businesses went about establishing a demand response capability. Some are included in this guide, others are on our website.

If you are unable to provide a response for the entire duration of a DR event, then you should not complete a bid. However, you may be able to group your business together with other businesses to aggregate your response. Or, you could use multiple buildings at one site or campus to take turns providing demand response for the duration of the event.

This type of aggregated response requires coordination by you or a third party aggregator. There are a number of organisations that provide this service, including looking after the communications and contract delivery with us so you don’t have to. If you want to participate as part of a group, then you must register together at the start of the programme.

As part of making it easier to participate in our programme, we have provided some case studies to demonstrate how other businesses went about establishing a demand response capability. Some are included in this guide, others are on our website.

For this programme, we have a preference for participants located in specific parts of the upper North Island (around Otahuhu and Wiri), the upper South Island (especially around Timaru and Temuka) and Oamaru.

However, we will consider participants based in other regions if they help us achieve our programme objectives.

If you’re already participating in another demand-side response programme, how will that affect your ability to also participate in Transpower’s programme?

For example, if you have an agreement to provide a certain amount of MWh when required, do you have further energy your business can deliver back to the grid if both programmes were called at the same time? Get in touch with us to discuss what options you may have.
Will I face any set-up costs to participate in the programme?

We will need to assess whether your systems are suitable for the programme but it is your decision whether you choose to pay for an energy audit and any improvements needed to your energy systems. The response to the Request for Proposal to participate in the programme includes the opportunity to claim a one-off establishment payment from Transpower, which would be a partial contribution to the costs you incur in setting up your systems for participation – called the Establishment Fee. You can include this cost in your application to take part in the programme.

How do I calculate how much energy I can provide?

To help you estimate how much demand response you can provide it is recommended you obtain one year of historic meter data. This will provide information about your building’s historic peak demand as well as the general daily demand profile. An energy audit may also be useful.

How much will Transpower pay my business to participate?

That will depend on your individual agreement with Transpower. For each demand response event you will have the opportunity to set your own price point via a ‘reverse auction’, based on your estimate of how much you want to be paid to cover your time, the costs of running your standby generator and to make it worth your while to take part.

So I can just name my price and get paid for every event?

You will only be paid for events you take part in. One of the aims of the programme is to establish suitable price points for demand response. Individual businesses set the price they require to cover their time and costs, but when an event is called we will calculate how much demand response we need and engage sufficient building owners to meet that need in the most economical way. Those with lower price points will be given priority – so those with higher price points are likely to take part in fewer events.

Do I need to invoice for payments?

No, the payment system is very straightforward. You will provide us with payment details as part of your contract. Following an event, you load your electricity meter data into our system and we calculate your payments and make the payment into your account.

When are the events?

Events will mainly be during office hours, Monday to Friday. You are able to stipulate the hours you are able to participate into your individual contract.

Find more FAQs – or ask your own – on our website
Wade Brown is the owner and operator of Kawerau New World. He heard about the Demand Response Programme and realised his store could probably be part of the programme.

“I completed the Request for Proposal forms during a Registration Cycle”, Mr Brown said. “It wasn’t complicated but it did require me to have knowledge about my peak demand, average power use, and how kilowatt hours (kWh) fit into the picture.”

“After the Registration Cycle finished, Transpower were in touch to let me know my business had made the cut.”

Kawerau New World was part of the programme from late 2014, and was able to take advantage of Transpower’s Demand Response App to participate when there is a call for demand response.

“When I get an email announcing a call for demand response, I open the Demand Response App on my iPhone and check out the details of the event. It’s really easy – I just put in the amount I’m willing to switch on my standby generator for, and if I get accepted to participate then the App gets notifications. Through the App I log the event in my Outlook calendar with a reminder to switch the generator on.”

“When the event concludes, we turn the generator off and the mains power comes back on. Afterward, I get a notification on my phone that the event has ended, and then an invoice comes through for the agreed payment at the end of the month. You can follow it all and look at the past events, power amounts, and prices on the App.”

Mr Brown said that it’s all good news for his business when it comes to demand response.

“To be honest, demand response hasn’t affected my business at all, the doors are still open and the lights are still on. During an event, customers at the supermarket wouldn’t be able to tell that anything was happening.”

“This programme has meant that I understand what my electricity usage is and that I have confidence that the generator is going to keep the store ticking over in the event we lose power supply.”

“We’re also being paid, and that’s great. As a business owner, driving down costs without reducing service or quality is a constant challenge. As part of my building warrant of fitness and disaster recovery planning, as an internal process in the store we are required to run the generator once a month. To me it was a ‘no brainer’ – if they’ve got to be on anyway, why not be a part of the demand response scheme and be paid for running the generators?”

Mr Brown recognises that understanding energy usage isn’t straightforward for everyone.

“My advice to anyone thinking about participating in the programmes is to make sure you’ve done your calculations correctly, and that you understand how much power you use, what your peak demand is, and how much you’re paying for your power. Understanding those numbers is critical so that you can set a price that works for you and your business.”

Quintin Tahau, Demand Response Manager for Transpower New Zealand, said: “Kawerau New World have been an avid participant in our programme, really being able to spot an opportunity and leverage it to make that business more energy efficient. We strongly encourage them to continue to participate when we call for demand response from the North Island.”
Further Information

Further information can be found on our website, including:
- Current demand response programmes being offered
- Case studies you could learn from
- Request for Proposal forms
- FAQs
- Demand Response Management System (DRMS) documentation

www.transpower.co.nz/demand-response

Alternatively, for anything regarding contracts or expressing interest in signing up to direct response programmes, please contact the Demand Response Manager, Quintin Tahau.

For any general DRMS support queries, please send an email to the support mailbox at DRMS@ems.co.nz.

Demand Response Manager
Quintin Tahau
Quintin.Tahau@transpower.co.nz

Demand Response Analyst
Che Lewis
Che.Lewis@transpower.co.nz