

## Hot water load management FAQ's

### Overview – Load management

- Load management temporarily interrupts electricity supply to hot water cylinders
- Used to limit demand for electricity at peak times on the distribution network
- Mainly used during winter evening periods (5-8pm, June-August)
- Typically less than 3 hrs/day, sometimes up to 5hrs in total during a day
- Shouldn't mean cold water unless customer uses up the hot water stored in cylinder

### Why does the hot water heating get turned off at various times?

There are times when demand for electricity becomes very high and results in more electricity than usual being used across the network. This occurs most often in winter, especially in the morning or early evening as people wake up or arrive home from work and turn on heaters, lights and start cooking.

At those times Vector is able to temporarily turn off hot water heating in order to reduce the electricity demand across the network. This is called load management and has been used throughout NZ since the 1950's.

### Does this turn off the hot water altogether?

No. Load management only turns off the electricity supplying the element that heats the water in your hot water cylinder. The hot water already stored in the cylinder can still be used and will stay hot or warm for several hours.

The difference is it won't be reheated during load management. Once the hot water in the cylinder is used, the cold water that replaces it won't be heated until the end of the load management period.

### How does turning off the hot water heating help?

Turning off the hot water heating during peak times helps reduce the amount of electricity being used at that time.

Hot water can be heated at non-peak times rather than during the peak when households need electricity for heating and cooking. Essentially, it is a simple, effective way of flattening out the peaks and troughs of demand for electricity.

## **When does the water heating usually get turned off?**

Load management is used when loads on the electricity network are very high. This is mostly in the winter (typically from June-August), especially in the morning and early evening when the demand for electricity peaks as people are turning on heaters and cooking. Peak demands are usually between 8.00am and 9.30am, and between 5.00pm and 8.00pm.

Some load management may also take place in summer for network management reasons.

There may also be times when Transpower, or another electricity industry participant, requests that Vector carry out load management.

## **How long is the hot water heating turned off?**

The period of time that hot water will be turned off will vary depending on the amount of load that needs to be reduced.

When used, load management typically affects a customer for less than 3 hours, but if needed is sometimes used for up to five hours across the period a day (i.e. may be used in both the morning and evening period, with reheating in the periods between). Under some extreme weather conditions this time may need to be extended if the system has been damaged and needs to be repaired. This is because priority is given to restoring power before hot water.

To minimise potential effects on customers, load management is shared between customers, and is spread throughout the day rather than occurring in a single continuous period.

## **Does it mean a cold shower?**

It shouldn't do. The water in most hot water cylinders will stay hot enough for several hours. If you don't use all the water available in the cylinder you probably won't notice any difference. In fact most of the time, most people don't notice that load management has been used.

However you could notice cool or cold water if you use all the hot water stored in the hot water cylinder. This could happen if:

- you have a long shower
- a number of people have showers during this time
- you use the washing machine or the dishwasher during this time

You might also notice lower water temperature if the thermostat on your hot water cylinder was due to come on again to reheat your water just before the load management took place. This would mean your water was already cooling and if you have a shower, you could use all the hot water stored in the cylinder in which case you will notice the water going cool or cold.

## **Is it possible to be excluded from having the hot water heating turned off?**

Customers can choose a price plan where Vector does not control their hot water however these Customers pay a higher price for line charges than those who allow control of hot water.

There may be additional costs to have any existing load management devices disabled or removed when moving from a controlled pricing plan to an uncontrolled pricing plan. This is arranged through the electricity retailer.

It is useful to remember that the lower controlled pricing plan applies over the whole year, even though load management is generally restricted to the winter months.

### **How does the system turn off just the water heating?**

There are two ways used for turning off hot water heating, depending on which area you live in.

#### **In Auckland, most parts of Rodney, Manukau and parts of Papakura:**

A system known as ripple control is used in these areas.

Once power usage reaches maximum limits, the computerised system in our network control room sends out coded signals across the network. When the signal reaches a household meter board a relay recognises the signal and switches off the electricity supply to the hot water cylinder.

When power demand eases, another signal is sent out to turn the hot water cylinders back on.

#### **North Shore, Waitakere, and parts of Rodney**

In these areas a system known as the pilot wire system is used. Once power usage reaches maximum limits, the computerised system in our network control room sends out signals to the relevant substations around the region. These substations have switches which then send out the load management instruction over a separate wire from the mains supply. This wire is connected to a relay in a household meter board, and once it receives the instruction the relay wire switches off electricity supply to the hot water cylinder.

When power demand eases, another signal is sent out to turn the hot water cylinders back on.

### **Is everyone's hot water switched off at the same time?**

No. A centralised computer system determines where and how much load management needs to occur. Load management is then shared across customers (i.e. off for one hour, on the next, etc) to minimise any potential effects on these customers.

### **How long does it take for the water to re-heat?**

Most household hot water cylinders will take a few hours to heat up if all the hot water has been used.

Remember, during load management, the re-heating won't start until the 'on' signal is sent. If you use all the hot water stored in your cylinder at the start of the load management period, the water won't start to be reheated until the load management period is finished. This will add extra time to the water being reheated, depending on how long until the end of the load management period.

**Does it cost more to heat a hot water cylinder if it has been switched off by a load management system?**

No. In fact, there may be marginally less electricity used overall if reheating a cold cylinder than keeping a cylinder at the temperature set point with uninterrupted electricity supply.

**Is there anything I can do to keep water hot during load management?**

Yes there are several ways to help minimise the impact of load management in your household as well as improve your household energy efficiency and even save money. They are:

- Use a cylinder insulation wrap around your hot water cylinder
- Put insulation on the pipes leading from your cylinder
- Use the cold water option when washing clothes.
- Make sure you have a cylinder that's big enough for the number of people in your house.