

The new Zoned Energy Rating Label for heat pumps / air conditioners

What installers and retailers need to know



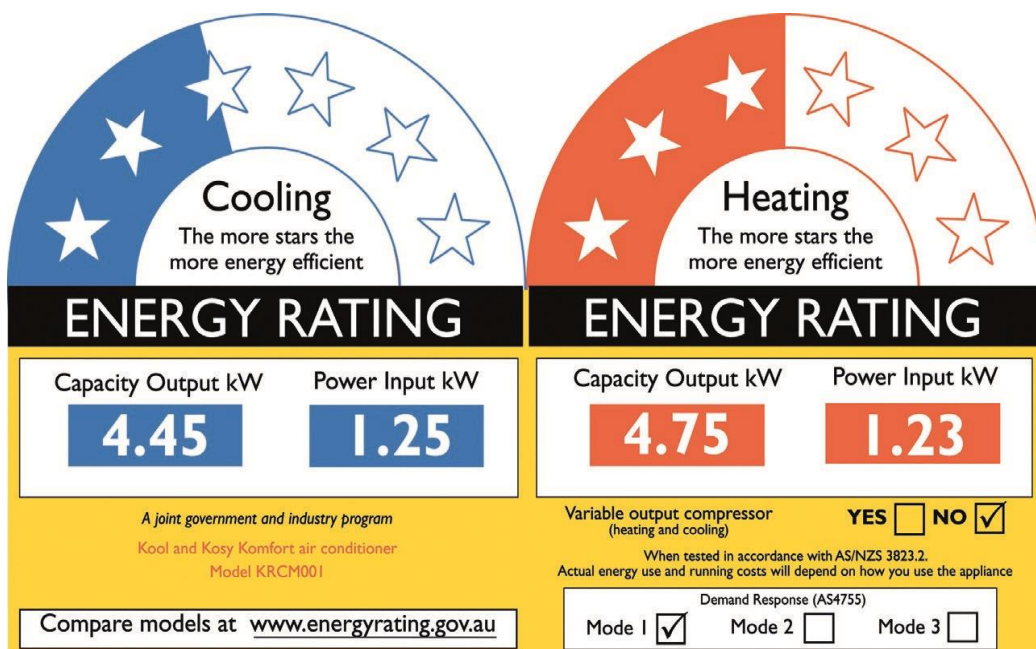
Overview

In New Zealand, air conditioners are subject to Minimum Energy Performance Standards (MEPS) and Mandatory Energy Performance Labelling (MEPL) requirements. These are regulated by EECA under the Energy Efficiency (Energy Using Products) Regulations 2002.

There is a new Zoned Energy Rating Label for air conditioners (air conditioners are typically known as heat pumps in the New Zealand residential market). The new label is expected to shortly appear on some air conditioners and will be mandatory for all new air conditioner once the new regulations come into force on 1 July 2021. Portable air conditioners will need to display Energy Rating Labels for the first time.

This guide provides an overview of the new label and the information it contains, answers to some questions that may be asked by customers and details of where to get more information.

Old Energy Rating Label (ERL)



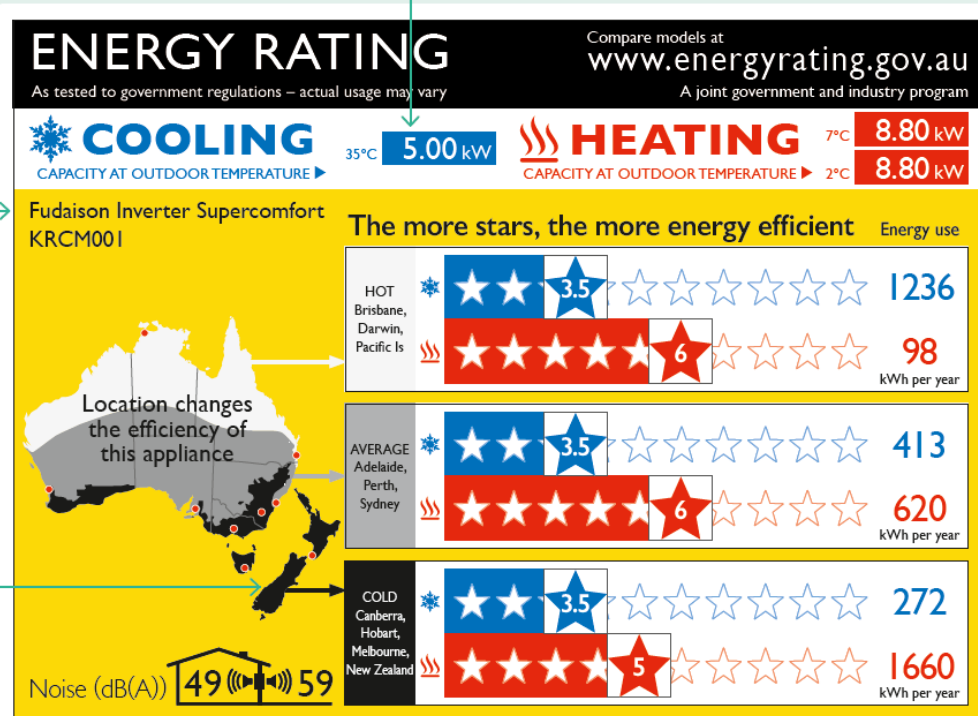
The old Energy Rating Label for air conditioners will still be able to be used until the regulations come into force (1 July 2021) and existing stocks of air conditioners run out.

Explanation of the new label

Talk to a professional to find the right sized unit for you. How powerful the unit needs to be (kW), depends on factors like the size of the space and how many windows there are. Using a correctly sized unit will make heating and cooling more efficient, comfortable and affordable. This label shows how powerful the unit is for heating when the outside temperature is 7°C and when it's colder at 2°C, and how powerful the unit is for cooling when the outside temperature is 35°C. **Compare units of the same kW size.**

The name and model of the unit.

Your zone is the black zone labelled 'Cold'. Choosing an efficient model for your climate zone can cost you less to run and is better for the environment.



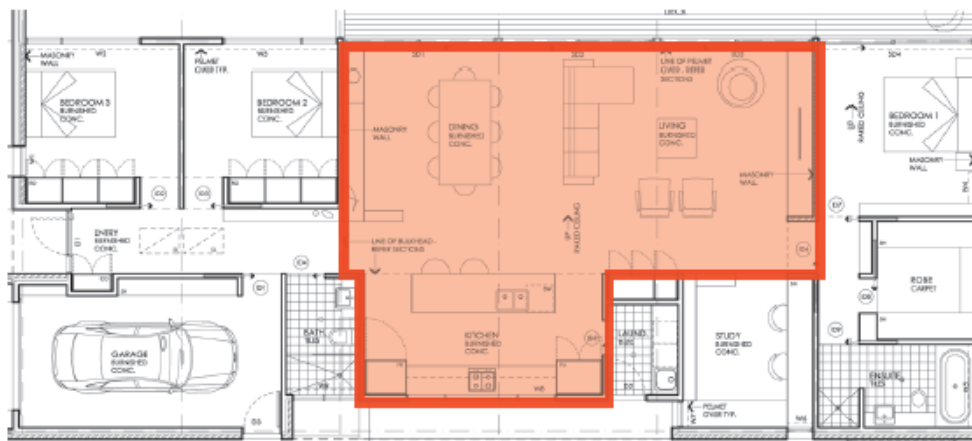
How much electricity the unit will use per year for heating and cooling. Lower numbers are better. The lower the kWh figure, the lower the cost to run.

How loud the unit is when running. Lower numbers are better. The number inside the house icon is how loud it will be near the indoor unit and the number outside the house icon is how loud it will be near the outdoor unit.

How efficient the unit is. The more stars, the more energy efficient. The blue stars show you how efficient it is at cooling and the red stars how efficient it is at heating.

How to read and use the new label

The most important thing customers need to know when purchasing an air conditioner is the size of the space they are heating or cooling. Ideally, they should also take into account other aspects of the space the air conditioner is going into such as the size and orientation of windows, insulation and shading. Having determined what size of air conditioner they require (through obtaining professional advice, use of an online air conditioner sizing calculator or the like) customers can then use the Zoned Energy Rating Label (ZERL) to compare air conditioners of similar capacity.



Air conditioners are sized based on their cooling or heating capacity. On the ZERL, this is shown by the 35°C, 7°C and 2°C numbers in the blue and red boxes near the top of the label. Customers should size their unit with more emphasis on the function (cooling or heating) they will use most. If the customer lives in an area where the temperature regularly drops below 7°C they should check to see that the 2°C heating capacity figure on the label is not significantly less than the 7°C number. Customers will see on the map that New Zealand is in the Cold zone and should check the star ratings to find which air conditioner is more efficient for this climate zone.

The kWh per year figures at the right hand edge of the star rating box give an indication of how much electricity that air conditioner may use for heating and cooling in that zone. They are only an indication, because air conditioner use will vary by household.

For customers to get an idea of how much it may cost them to run the air conditioner in a year they should add the blue and red kWh figures for their zone together, then multiply by their electricity tariff. The average residential electricity tariff in New Zealand is about \$0.29 per kWh.

Energy use

933

93

kWh per year

Noise (dB(A))  49 59

The house icon at the bottom of the label indicates how much noise the air conditioner will make when operating at full power. For air conditioners with both internal and external units, there are separate inside and outside noise ratings. Portable units will only have an indoor noise figure while ducted units will only have an outdoor noise figure. The external noise level may be important if the unit is near a window, bedrooms or close to a neighbour's house (particularly in body corporate situations where there may be specific requirements). Displaying noise levels on the label is optional in New Zealand, so you will see ZERLs with and without noise levels.

How to display the new labels



As there is a long transition period, the requirements for displaying the correct Energy Rating Label will depend on several factors such as the type of air conditioner and when the model was registered. Your supplier/distributor should provide you with the correct labels for the models you are supplying and displaying in store.

If the model has a ZERL, you need to ensure:

- each model being displayed in store, or represented by a display unit, has its own ZERL
- the ZERL is stuck on or attached to the model or display unit
- if there is no model out of its packaging, but the packaged model is on display, a ZERL should be displayed on the packaging for clarity
- for portable units (single and double duct): stock that has already been manufactured or imported into New Zealand prior to 1 July 2021 can continue to be sold until that stock is exhausted without a ZERL. No new stock may be manufactured or imported into New Zealand and sold after that date unless it is registered to the new Regulations and displays the ZERL.

What about labelling on a dummy head display?

You must display a ZERL or ERL on a dummy head display, depending on the requirements for the models you are displaying (see previous section for more detail).

Where a model is required to display a ZERL, and you wish to advertise multiple models on a single dummy head unit with price tags and information, the ZERL for each model must be displayed.

How do I get a replacement label?

If a label is missing or damaged, contact the supplier of the air conditioner to get them to provide you with a replacement label. Ensure that you are aware of your responsibilities under the Energy Efficiency (Energy Using Products) Regulations 2002 for labelling of display stock.

Common questions from customers

Why the change?

To provide consumers with more and better information about expected energy use for air conditioners, based on where they live. The new label will help people when buying an air conditioner (including portable air conditioners) to save money on their household energy bills. The new labels provide information about likely energy use by the air conditioner over the course of the year. This information is more useful to consumers than the power draw at full load figure that the old label provided.

Why are there two different types of air conditioner labels in the shop?



There is a transition period where both the old Energy Rating Label (ERL) and the ZERL may appear on products in store. This may create confusion for customers and lead to additional questions for you as the product expert dealing with the customer.

All air conditioner models new to the market from 1 July 2021 will have the ZERL. Over time, the old ERL for air conditioners will disappear and be replaced by the ZERL. Current models can continue to use the old label until stocks run out.

Are the stars the same? Can I compare the stars on a product with the old label with one with the new label?

No, they are not the same. Nor is it possible to convert the old stars to the new stars.

The star ratings on the old label measured how much cooling or heating output was achieved per unit of power. It related to the efficiency of the air conditioner at a particular temperature, but did not take into account consumer usage patterns to determine typical electricity use.

How loud is that noise level on the label?

For comparison, here are some common sound levels (in decibels):

- **30dBA:** typical noise in a quiet home
- **50dBA:** inside of a quiet car while driving
- **60dBA:** having a typical conversation
- **75dBA:** an operating vacuum cleaner.

A noisy indoor unit may interfere with your activities, conversation or sleep. A noisy outdoor unit can disturb you (if it is too close to a bedroom or living room window) or your neighbours. The noise levels on the label are measured with the air conditioner running at full capacity on its cooling function. For much of the time an air conditioner is running, its noise level will be lower than the level indicated on the label.

How much will it cost to run per year?

The label gives an indication of energy use per year for an air conditioner model. Customers need to add up the heating and cooling figures for their climate zone and multiply that by their electricity tariff to get an indication of how much it may cost to run per year. The average electricity tariff across New Zealand is about \$0.29 per kilowatt hour (kWh). If customers use the air conditioner a lot, then the air conditioner will use more electricity per year and cost more to run.

What does one star mean?

The stars are a way to compare the performance of similar capacity air conditioners, with more stars being better. A one star air conditioner means that, compared to other air conditioners with similar capacity, it is one of the poorest performers in terms of energy efficiency.

In technical terms, a one star air conditioner has a Total Cooling Seasonal Performance Factor or Heating Seasonal Performance Factor of between 2.5 and 3. In contrast, a three star air conditioner has a Total Cooling Seasonal Performance Factor or Heating Seasonal Performance Factor of between 4.5 and 5.

Can I find a 10 star air conditioner?

The best unit at the time the ZERL was developed achieved an 8 star cooling rating in one zone. This leaves room for air conditioner efficiency to improve over time without having to re-calibrate the star ratings.

Why do portable air conditioners have zero stars?

Single duct (one hose) portables blow cool air out the front of the machine so that if you sit in front of it you feel cool, but the unit has no overall cooling effect on the room. Air conditioner stars are awarded on how efficiently they cool a room (or heat a room in the case of the heating stars). As single duct portables do not cool the room, they are awarded zero stars.

Some portable air conditioners may have two hoses ('double duct' air conditioners). These air conditioners can heat or cool a room and therefore can achieve more than zero stars.

Why do air conditioners work differently in different climates?

There are various aspects of an air conditioner that can be optimised for the most efficient performance. Some are designed to have their maximum efficiency when they are working at full capacity, such as on the hottest or coldest days. Others are designed to cope best when working at part-loads, when only a small amount of heating or cooling is required. Some are optimised to remove humidity, and some are optimised to perform better in frosting conditions.

When the outside temperature is below 5.5°C, the air conditioner will need to deal with frosting conditions. This requires a diversion of some heating capacity to defrost the refrigerant coils. This can result in less efficient operation during a defrost cycle to maintain desired room temperature.

Why are there two heating capacity numbers but only one cooling number?

The star ratings are calculated based on the performance of an air conditioner across a range of temperatures. The first heating capacity number is based on an outside air temperature of 7°C. As it gets colder outside, more heating is required to maintain inside temperature. Some air conditioners are better able to provide this extra heating, as shown by having a larger capacity number at 2°C than 7°C.



Showing the heating capacity at 2°C gives an indication of how well the air conditioner can cope with frost. The outside unit of an air conditioner expels cold air, as part of the process of heating a room. The outside unit has to deal with frost at outside temperatures of less than 5.5°C. Some air conditioners are not well designed to cope with frost and may provide less heating at 2°C than at 7°C.

Customers should size their units on the 35°C cooling capacity, if they intend to use the air conditioner mainly for cooling. If a customer expects to use the air conditioner mainly for heating, they should use the 7°C heating capacity for sizing. However, if a customer lives in an area where overnight winter temperatures can get down to 2°C or less, they should check that the heating capacity at 2°C is the same or greater than the heating capacity at 7°C, and use this number as a point of comparison between different models.

Where can I get more information?

For information on the ZERL, please see: <https://www.eeca.govt.nz/our-work/product-regulations/product-labels/zoned-energy-rating-label/>

The EECA website has further information on product standards, ratings, labelling and compliance: <https://www.eeca.govt.nz/our-work/product-regulations/how-to-comply/retailers/>

The new regulations (in force from 1 July 2021): <https://www.legislation.govt.nz/regulation/public/2020/0305/latest/LMS354587.html/>

The current regulation: <https://www.legislation.govt.nz/regulation/public/2002/0009/latest/DLM108730.html/>

The Energy Rating website has a registry listing all the air conditioner models for sale in New Zealand and Australia with further information on product energy performance and other useful energy efficiency information: <https://www.energyrating.gov.au/>

Contact us

Energy Efficiency and Conservation Authority
Standards and Regulations

Web: <https://www.eeca.govt.nz/>

Email: star@eeca.govt.nz



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