

HOME BATTERIES

FACT SHEET

Rewiring Aotearoa



INTRODUCTION

Battery storage, from household to utility-scale batteries and within electric vehicles, is a game changer in the energy transition. Solar penetration is still low in New Zealand but it is growing quickly and if we want to make the most of it we need to capture and store it to be used when the sun isn't shining and when demand is at its highest.

With the cost of batteries falling rapidly and the performance rapidly improving, getting a battery could be a key piece of the puzzle to untether yourself from fossil fuels. Whether you're aiming to save money on electricity bills, minimise your carbon footprint, or prepare for emergencies, now is the time to consider investing in a home battery.



BREAKDOWN

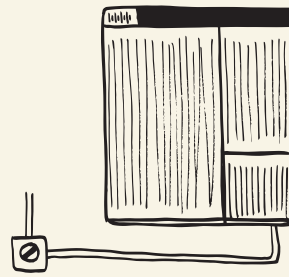
Average upfront cost	\$700 - \$1,300 /kWh	5 kWh = \$6,000 to \$7,500 / 15kWh = \$14,000 to \$18,000
Average bill savings	\$250 per year / \$3,750 over 15 years	with solar
Emissions Saved	Moderate	
Lifetime	5 - 15 years	
Difficulty of installation	Medium	
Electrical upgrade required	No	
Installers Required	Yes	Registered Solar Installer



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WITH OUR HOUSEHOLD ELECTRIFICATION CALCULATOR
[REWIRING.NZ/CALCULATOR](https://rewiring.nz/calculator)**



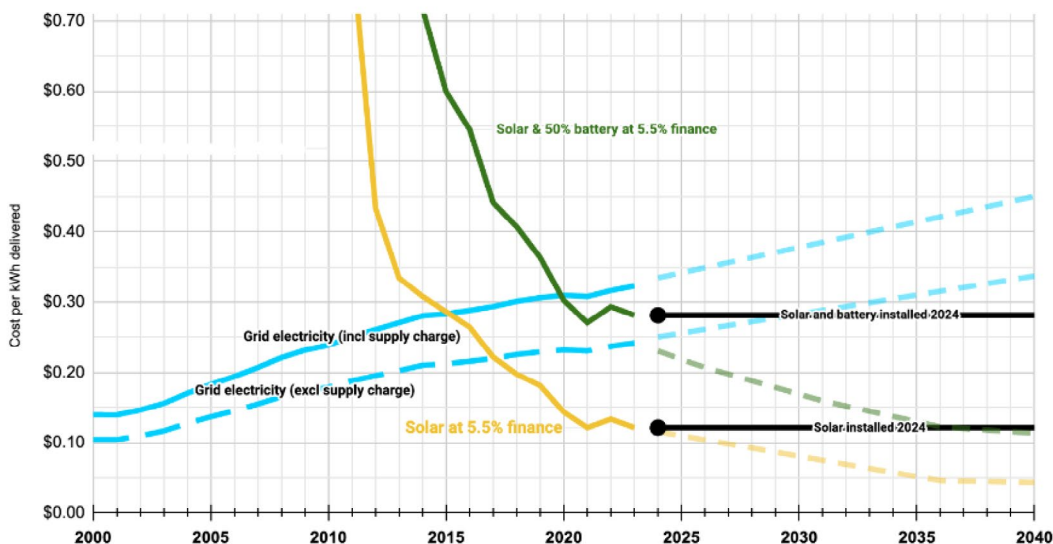
WHY CHOOSE A HOME BATTERY?



- **Reduce running costs.** Reducing the energy you import from the grid - especially if you are on a time of use plan during the peak tariff periods (eg. 7 - 11 am or 5-9pm) when there is high demand could reduce your energy bills significantly if you have solar. Battery cycles are now cheaper than grid electricity, and if it can be financed at a low interest rate through a green loan then it is likely already affordable today for many homes.
- **They're great for the climate.** Maximising renewable energy resources by storing it for use at night time or during periods of low solar production ensures a significant reduction in household emissions.
- **They improve resilience.** Whether it's to use energy during blackouts or extreme weather events, batteries can provide you with power when there is a grid outage and can be charged via rooftop solar.
- **They're important for our energy transition.** With solar and battery storage, households can become a key part of our energy infrastructure. Every home with a battery is basically removed from the peak load, can add security during blackouts and reduce the need for expensive large-scale infrastructure. Batteries in homes and businesses may seem individually small, but they could have a significant impact when combined. As an example, 120,000 homes (or 5% of households in New Zealand) with a medium-sized battery could potentially reduce the peak load as much as our largest hydro power station, Manapouri. While these batteries would not hold as much energy as Manapouri, they could output the same amount of power for an hour or two when the system really needs it.

New Zealand delivered electricity cost per kWh over two decades.

Rewiring Aotearoa Analysis: StatsNZ Quarterly CPI History 2023, MBIE Energy Prices & COSEP 2023, SEANZ 2023 Solar data, NREL forecast, Micah Ziegler and Jessica Torrick (2021) historic battery pricing and Our World in Data historic solar pricing adjusted to NZ prices.



Costs per kwh delivered over time

WHAT TO CONSIDER ?

- **Compatibility:** If you are buying solar at the same time, opt for an inverter that is compatible with both systems. If you have an existing solar system, depending on your current inverter, you may need to purchase a new one.
- **Battery location:** You have to follow New Zealand Standards as to where they can be placed, which will be known by your installer.
- **Your location:** The amount of sunlight hours will affect charging rates. If you live in a cooler climate you most likely will need a larger battery as your solar production will be lower. If you live in a hot climate, make sure the battery is shaded so as not to overheat.
- **Controllability:** Consider choosing a battery that can be easily controlled by yourself or can be automated to charge and discharge to maximise its use.
- **Battery chemistry:** While lead-acid batteries used to be popular, especially in remote areas, the most widely available home batteries use lithium-ion chemistry (similar to the batteries in laptops and mobiles) because they are more efficient and have higher power for weight/volume. There are sub-types of lithium ion batteries with variations in efficiency and capacity so it's best to discuss with your installer. Nickel-iron or flow batteries can't compete on performance and price; while sodium-ion batteries also can't currently but may do so in a few years.
- **Capacity:** To determine battery size, calculate your electricity usage and power of appliances, aiming to cover energy consumption during peak grid times (eg. 5-9pm). Also factor in future usage, such as replacing gas appliances with electric ones. One day we may all have big batteries on wheels parked in our driveways (otherwise known as electric vehicles) that can power our home, but only the newer, more expensive models offer that at this stage.

RENTERS

Unfortunately, asking for a battery from your landlord is challenging. Our advice is to first pitch having solar panels installed as the return on investment is just 5 -7 years on average, making it an easier sale. Join advocacy campaigns, such as with Rewiring Aotearoa, which is calling for the government to do more to make electrification accessible for renters and incentivise landlords to install solar and batteries with low interest finance that could reduce tenants' bills, improve the appeal as a rental and increase the value of the property.

GETTING IT INSTALLED

1

Research - You may want to use online calculators, enter in details like your postcode and energy bills to get a sense of tailored solar and battery options and potential costs and savings.

2

Get quotes - Consult with a qualified solar and battery installer to assess your energy needs and site suitability. SEANZ has approved installers that meet high standards of product and service. Receive detailed quotes outlining the system recommendation, cost of the battery system, installation, and any additional components.

3

Install - Installation usually takes 1-2 days. Schedule the installation with your preferred certified installer who will integrate the battery with your existing solar PV system and electrical infrastructure.

4

Monitoring - Your system may have settings you can adjust to maximise your usage, such as certain times of the day you want to charge and discharge the battery. A good monitoring system will assist this decision making process.



FAQ

Is it worth getting a battery now?

It depends what your motivations are. It's a firm 'yes' if you are keen to reduce your household emissions, improve your energy resilience and create an all electric home. If you are primarily concerned by the return on investment, unlike solar (which is a slam dunk for most homes today), batteries aren't a clear call just yet, but those economics are improving every day. It may well make financial sense if you are on a high time of use tariff or can join a battery plan, like the one offered by [Octopus Energy](#) or a wholesale plan.

Rewiring Aotearoa is advocating strongly for batteries to become more "bankable" by fairly rewarding customers that export energy at peak times, something we call Symmetrical Export Tariffs. This would show the true value of a battery and help to speed up the payback period and adoption.

How do I make the most of it?

- Implement smart energy management systems that monitor and control the charging and discharging of your solar battery. These systems can enhance efficiency and prolong battery life.
- To maximise savings, avoid buying electricity from the grid at peak times and time battery utilisation for peak times.
- Many batteries work best if only discharged to 80%, rather than full 100%
- Consider a wholesale market plan or battery plan that can match your battery usage with grid fluctuations.

Are home batteries safe?

Yes. New Zealand has strict standards that apply to batteries including the location and installation. If these are followed, the risk of fires is very low.

Can batteries be recycled?

Yes! 95% of a lithium battery has the potential to be recycled and second life battery manufacturing is occurring in New Zealand.

What about going off grid?

If you want to completely go off grid you will probably need a very large solar and battery system to cover all your energy needs and you can face particular challenges such as town planning regulations. There are a lot of benefits for most New Zealanders remaining connected to a grid system, so we are not advocating that homes look to go off grid, but having solar and a battery ensures you have more resilience, control and independence whilst grid connected.

What finance options are available?

There are many private finance options available that may help you afford the upfront cost of batteries. Many of them require you to have a home loan with that institution but offer low-interest loans for more sustainable products such as solar panels, batteries and EVs. Here are some current options available: Green loan low-interest finance offers from lenders such as [ASB](#), [BNZ](#), [Kiwibank](#), [Westpac](#), [ANZ](#) and others. [MoneyHub](#) has a good rundown of the funding options, from mortgage top-ups to green finance credit cards.

KEEN TO LEARN MORE? VISIT [REWIRING.NZ](#)

Plug in to the mission

Email: hello@rewiring.nz

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