



INTRODUCTION

Rooftop solar is the cheapest form of delivered energy available to New Zealand homes, at less than half of the average grid electricity costs. Households can enjoy cheap and clean energy, and use this to power their efficient electric appliances and cars. As prices for fossil fuels and grid electricity look set to continue rising, solar panels lock in a lifetime of savings and low emissions living.

Conventionally, New Zealand has thought of solar and batteries as not providing much emissions reduction, because we have an 80% renewable electricity grid. However, our electricity grid does not include all the fossil fuels we burn in our cars, so only around 30% of New Zealand's total energy use is renewable. We will need more renewable electricity to electrify our cars, and rooftop solar can provide a lot of that energy - reducing vehicle emissions - and also provide the lowest cost charging for our vehicles.



BREAKDOWN

Average upfront cost	≈\$2,000	per Kw (an average solar installation is 4.4kW in New Zealand and around 9kW in Australia). Costs also vary by region.
Payback Period	5 - 7 years	
Return on Investment	10 - 15%	
Emissions Saved	Moderate	Higher if used to charge an EV
Lifetime	15 - 20 years	Some panels are warranted for 40 years
Difficulty of installation	Moderate	
Electrical upgrade required	Yes	
Installers Required	Yes	Registered Solar Installer



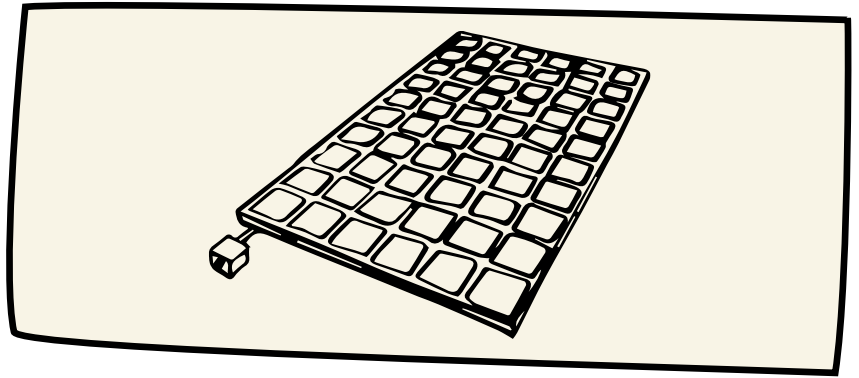
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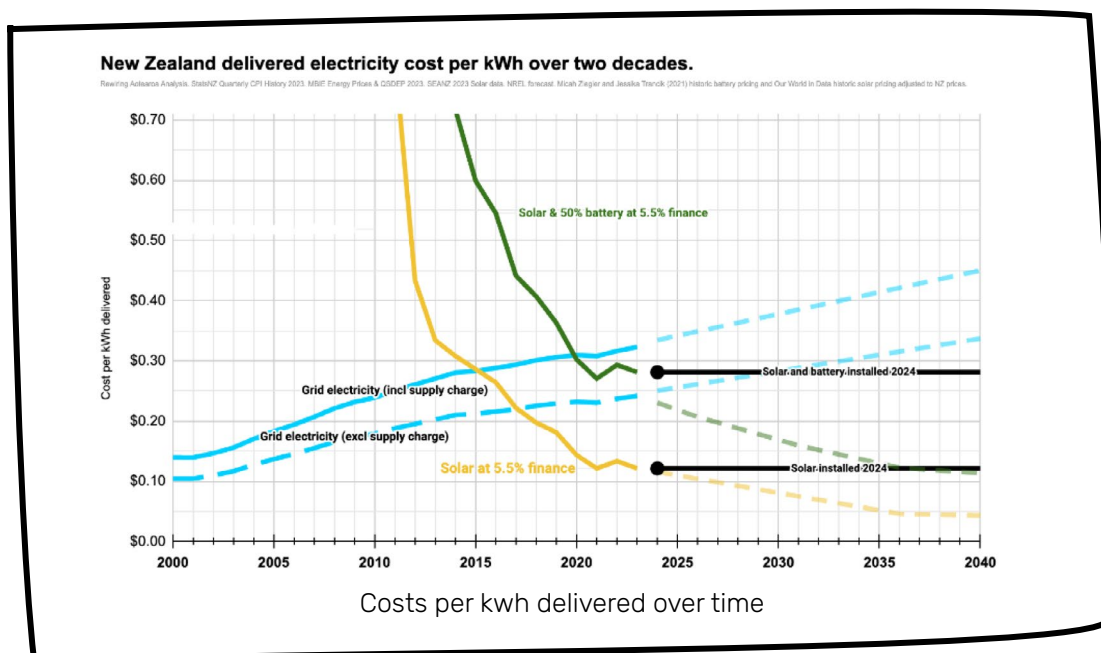
ROOFTOP SOLAR

Rooftop solar systems utilise photovoltaic (PV) panels installed on your roof to convert sunlight into electricity.

WHY CHOOSE ROOFTOP SOLAR?



- **You'll save money.** Solar is the cheapest form of energy available to New Zealand households, and the cheapest energy the world has ever created. The day you start powering your home's energy needs from your rooftop solar is the day you will save money on your energy bills. Even if we put a magical power plant in the middle of the country that generated free electricity, it would still be cheaper for customers to have rooftop solar because of the costs associated with transporting that electricity via all the poles and wires.
- **They're good for our climate.** Thanks to this technology, you can power a lot of your energy needs using a clean energy source without the greenhouse gas emissions produced from fossil fuels, both at a household level through petrol and diesel cars or at a national level through fossil fuel electricity generation. The more roofs with solar panels, the faster we can get to a cleaner, more sustainable energy future.
- **You can build your electric home.** Once you've got cheap energy flowing straight off your rooftop, it makes more sense to have electric heating, cooling, cooking, hot water and vehicles.
- **You can be more energy independent.** By producing your own power on-site, you can have more control over your energy use. When you time your appliance use to when your solar is producing energy, this is the best way to maximise benefits.
- **Improve your property value.** Rooftop solar installations can increase the value of a property. Studies have shown that homes equipped with solar panels tend to sell faster and at higher prices than those without, as they offer prospective buyers long-term energy savings and environmental benefits.
- **Help your community.** The more solar there is, the more it benefits the whole community as increased local power generation reduces the costs of power transmission. In Australia, which has a larger solar industry, it is also estimated that there are 39 jobs directly supported for every 1 megawatt of solar installed.



WHAT TO CONSIDER WHEN BUYING SOLAR PANELS?

- **Inverter type:** Microinverters are attached to the back of each panel, while string inverters are all connected. Microinverters are generally more expensive but are more effective and good for shady roofs or complex installations.
- **Quality:** Invest in high-quality solar panels and components from reputable manufacturers to ensure reliability and longevity. Better quality panels usually have higher efficiency and longer warranties too.
- **Future energy use & system size:** If you can, choose the biggest system you can afford and will fit on your roof. This is so you can accommodate any future electric needs (eg. electric vehicle). It costs less to install all at once and you can provide more electricity for winter use.

Did you know? It used to be thought that solar panels were only good for north-facing roofs. With technological improvements and costs falling, these days it can be economical to put solar panels even on south-facing or shady roofs. Your installer can advise you.

GETTING IT INSTALLED

STEP 1

Research

Assess your solar potential. A solar provider can do this when they quote, or you can do it yourself using calculators such as [Gen Less](#) or the more advanced solarview.niwa.co.nz to help you calculate your solar potential, potential costs and savings.

STEP 2

Get quotes

Receive a number of quotes from local providers or use a site like [Pricemysolar](#) or [Mysolarquotes](#) to find recommended installers. Industry group [SEANZ](#) also has a list of authorised suppliers. During quotation, they can advise you on your panel and inverter choice and size based on your roof and location and let you know of any work that may be required beforehand (eg. waterproofing).

STEP 3

Install

Your preferred solar provider will do the installation and connection to your electrical panel and grid.

STEP 4

Monitoring

Many systems come with monitoring tools to track energy production and performance.

STEP 5

Maintenance

It's a good idea to have your panels cleaned every couple of years.

RENTERS

If you are renting, consider discussing solar options with your landlord. Some landlords may be open to installing solar panels, especially as it is likely to enhance the property value and attractiveness as a rental. You could calculate a value proposition and negotiate a slight rental increase for the benefit of bill reduction.



FAQ

How do I make the most of it?

- **Monitor:** Spend the first few weeks of having solar by using an app to monitor your energy habits to ensure you are matching consumption to production. You might be surprised!
- **Load shift:** There is a lot of potential to maximise your savings with simple measures such as shifting more of your energy consumption to daylight hours. Use the delayed timer feature on appliances like dishwashers and washing machines, and set timers for hot water systems. If you have an EV, make sure you charge it via solar to enjoy huge energy bill savings.
- **Get off gas:** Once you have solar, it makes more sense to remove gas appliances including your water heater, space heater and cooktop and install efficient, electric appliances. That is likely to be when they need replacing, but it may make sense to do it earlier.
- **Invest in a battery:** The next step is to consider investing in a household battery so the energy from the sun can be stored and used at peak times. This is especially beneficial for those on time-of-use plans with their retailers as households can reduce peak usage from the grid.

Will I need to upgrade my electricity meter?

A solar system requires a smart meter on your main connection, and if your switchboard is old it could also require replacement but not necessarily. Your installer will tell you if you need upgrades as part of your quote.

What about Feed In Tariffs or 'buy-back rates'?

Any excess solar you're not using is automatically fed back to the grid (unless you have a battery). The Feed in Tariff or buy-back rate is what your energy retailer is prepared to pay you for the energy fed back. The real savings are made if you can use as much solar as you can when it's produced, so it makes sense to set timers and use appliances and chargers during the daytime. Check different retailers to see their rates as they vary considerably.

Will my solar work in a blackout?

Grid-connected solar systems are shut down during a grid outage to avoid feeding back into an inactive grid. However, there are inverters available that can utilise PV generation even when the grid goes down, so homeowners can choose to have that option. If you have a home battery backing up your PV system, you can charge the battery with your solar panels and use your battery for power.

If you're in an area that gets frequent electricity problems, or you want added resilience, you will likely need to specify to your installer that you want this capability. Battery systems can be set to back up the home in an outage, or also just turn off. When specifying a battery install make sure you speak to your installer about the backup options you would like to have.

What finance options are available?

You can pay up front. Average systems in New Zealand take around 5-7 years to pay back, and provide a 10 - 15% return on investment, which is much better than the average deposit rate - and likely to improve as the price of grid electricity goes up.

Talk to your existing lender to add solar to your mortgage or see what green finance products they offer at lower interest rates.

Many installers offer low-interest payback periods, but only for a few years.

Please note everyone's situation is different and this does not constitute financial advice (speak to your accountant or financial advisor).

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