

15

ESSENTIAL QUESTIONS TO ASK BEFORE CHOOSING A SOLAR SUPPLIER

1. How long have you been in business in New Zealand?

The solar industry is relatively new and there are a number of young and inexperienced companies trying to get into the market. But solar has a long lifetime with long warranties. Ask how long the company has been in business here in New Zealand? A company with decades of experience is likely to be around to service the warranty fifteen or twenty years down the track. Use a local company that you trust. If something goes wrong with your system who will be there to back you up?

2. How many installations have you completed in my area?

Solar installations are complicated. You don't want an installer who is learning the job on your roof. Go for companies who can demonstrate that they've installed hundreds of systems in your area. You also want to be able to visit some installations close by and talk to property owners who have had an installation done by the company you are considering. Ask if the company can provide references of people you can talk to?

3. Are you members of SEANZ?

The Sustainable Energy Association of New Zealand is the independent industry organisation for the solar industry in this country. SEANZ provides advocacy, policy, representation and promotion of New Zealand solar and battery standards and is the industry body that every reputable solar supplier belongs to. Banks won't lend on solar installations unless the supplier is a member of SEANZ. Ask if your installer belongs to SEANZ?

4. Who will design my system?

There are many companies that allow their salespeople to design systems without proper engineering knowledge and without data collected from your property. Site visits are essential. They must be done by an electrician who will open your switchboard and take measurements to determine cable sizes and compliance. Ask if the company employs electrical engineers who understand the intricacies of New Zealand regulations and standards? Be sure your system will fully comply with the standards in the box on the right.

5. Who will install my system?

Some solar companies have moved into solar from other industries—like carpet, or home insulation. They don't employ their own electricians and will subcontract the actual installation work to another company. Ask who will be working on your roof and how much experience they have installing solar? When solar systems have a lifetime of least 25 years, you want to make sure the installers will do the work right. Solar installations are classed as 'high risk' under the Electrical Wiring Regulations and the Prescribed Electrical Work must be done by registered electricians. It's always better to use a company that can handle the whole process—in house—from beginning to end.



New Zealand Standards for Solar

- ✓ NZS 5033 Installation and safety requirements for photovoltaic arrays
- ✓ NZS 4777 Grid connection of energy systems via inverters
- ✓ NZS 1170.2 Structural Design Actions - Wind actions
- ✓ NZS 3000 Electrical Installations - Wiring Rules
- ✓ NZS 5139 Safety of Battery Systems

6. What size system should I choose?

Solar systems should be sized to your energy needs, your budget, and your property. Your system should not be purchased on the basis of a set size or system pricing. Each property and household is different and your solar supplier must take into account your historical electricity consumption patterns. They must include a realistic allowance for how much power you use during the daytime and give an estimate of how much power you will export. Be wary of a solar supplier that can't account for or doesn't understand all these factors. Be especially wary of a supplier that bases their system sizing on you being able to consume most or all of your solar generation during the daytime, as this rarely is the case.



7. What reduction in electricity costs will I get?

Ask for the details of the expected savings you will receive when solar is installed. These savings should take local weather data into account e.g., from NIWA, and incorporate a site-specific shading analysis—if your roof is not shade-free.

8. What quality of system am I getting?

Not all systems are created equal. Make sure that you receive documentation outlining what panels and inverters you'll receive. Solar panel quality can be determined from the length of time the manufacturer has been producing panels and the length of the *product* warranty—which is different to the performance warranty. Make sure the *product* warranty is at least 25 years.

For inverters, choose a reputable manufacturer with a product that has been widely installed and is offered by the majority of New Zealand installers. Good inverters have a 10-year warranty—and the best inverters can have their warranty extended to 25 years. Inverters should have online monitoring that is easy to use on any web connected device. Ask if free fault monitoring is included for the life of the system?

As well as this ask about other important specifications in the box below...

What makes a good solar panel?

- ✓ Made by a company with at least 30 years of experience
- ✓ Has at least a 25-year *Product* warranty
- ✓ Warranty service (if required), that includes payment for labour costs
- ✓ Warranty not voided if panels are shaded
- ✓ Low annual degradation—at least 85% output after 25 years
- ✓ Ethical supply chains that don't use forced labour
- ✓ High efficiency

9. How do you forecast the system's energy production?

In real-life installation conditions a solar system's electrical output is not the same as its name-plate value, so verify that the company has a robust methodology of forecasting your system's actual production. The best forecasts take into consideration factors related to your specific roof (e.g. roof pitch, shading and angle to the sun), electrical and other losses, as well as factors related to your home's location (e.g., solar energy potential and historical weather patterns).

10. Do you have three phase power?

If you're in a rural area, chances are your property has a three phase electrical supply. If you are a commercial customer you'll definitely have a three phase supply. This means that you'll need inverters that can generate power across all the phases in your property. If your supplier recommends a single phase inverter on a three phase supply, then you are not getting the best solution. In fact, you could end up exporting a lot of power on the phase with the inverter while at the same time importing power on the other phases. This wastes your generation and dramatically reduces your return on investment. Micro inverters are easily installed across three phase supplies and don't have this problem. Alternatively, the system should specify a three phase string inverter.

11. How safe is my system?

Solar installations are categorised as 'high risk' installations under the Electrical Wiring Regulations for good reason. String inverter systems require high voltage DC cables on your roof and inside your house. Properly installed, these are safe, however if standards are not followed or workmanship is sub-standard then a fire risk can be created. Micro inverter installations don't use high voltage DC, so are inherently safer. Ask your installer what public liability insurance they carry? It could save you not only from any fire risk, but also from the risk of any roof leaks—another problem with poor work practices.

12. Is my system easily expandable?

Be aware that it's not straight forward to add extra solar panels to a string inverter in the future. The solar panels connected to a string inverter must be of the same type and electrical specifications. It is highly unlikely that the same panels will be available in the future if you want to expand your system. Because systems with micro inverters don't have this limitation they are more future-proof than systems with string inverters. Ask your supplier if the system contains a string inverter or micro inverters? Likewise, ask if the system can easily be retrofitted with batteries?



13. What documentation will I receive?

Regulations require that your system is not only properly installed, tested, inspected, and commissioned, but also that you are given a full set of documentation including a list of equipment along with manufacturer instructions, operating procedures, commissioning tests, maintenance instructions, warranties, wiring diagram and engineering certificates. Quality documentation goes along with quality equipment and a quality installation. Make sure you ask about this.

14. What if something goes wrong in the future?

No one likes to consider the worst, but what would happen if there was a fault? And more importantly how would you know if your system (or part of it) was faulty and not producing power as expected? One of the benefits of micro inverters is the remote online monitoring through Enphase that enables you to view fault information right down to the individual solar panel level. Ask your supplier if their systems have this kind of remote monitoring and fault diagnosis? Ask about the length of the warranties? Ask who handles any warranty claims and replacement of faulty equipment?

15. Should I lease or own my system?

Solar leasing programs are available in New Zealand. Here are some of the issues to think through:

| | Purchase/Own | Lease |
|----------------------------|---|--|
| System cost | Capital cost up front either from own funds or from finance or mortgage | Zero or minimal up front cost |
| Return on Investment (ROI) | Typically 7-11% for residential systems, better for commercial systems | There is no ROI, because leasing is not an investment, instead it is an expense in return for electricity savings |
| Contract | Only with the solar supply company for installation | Ongoing formal legal contract for 20+ years. Usually there is no right to exit the contract unless you buy out the remaining payments due |
| Property value | Solar system is an asset that potentially adds value to the property | Solar contract is a liability as it has to be transferred to a new owner or the remaining payments bought out if you want to sell your home. |
| Maintenance & repair | Property owner is responsible, but warranties cover most liability | No liability as the lease provider maintains system |
| Cost of solar power | Once the system has paid for itself all power generated is free | Savings are equal to the generated power, less the monthly contract fee |
| Going on holidays | No financial penalty | Liability of contract payments continue even when you are away |
| Flexibility | Extensive. You can upgrade your system at any time | Limited. You can only upgrade when offers are made by the Lease provider |

When choosing between a leased or own-your-own system it pays to think like an investor. A solar system that you own is an investment in an asset that becomes part of your home or business. If you lease, you don't own the asset, instead you pay to use someone else's asset.

Finally

If in doubt about a solar supplier, remember that the lowest priced quote may not be the best deal when you factor in answers to all the questions above. Consider the experience of the supplier and installer. Going solar is a great investment, but it's also a long term one—so it's important to have the installation job done right from a company that you can trust.



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Answers to the above questions

(1) 35 years; (2) 620 installations in the lower North Island; (3) Yes; (4) Our in-house Registered Electrical Engineers; (5) Our own Registered Electricians; (6) Our quotes are customised to your electricity use, roof size, consumption patterns etc.; (7) Our quotes include savings calculations (and shading analysis if required); (8) Our systems are the highest quality available in New Zealand; (9) Our quotes use the NIWA climate data closest to you; (10) If your supply is 3 phase we install inverters on all phases to match your load; (11) Our Enphase systems don't have high voltage DC. We have 10 million of insurance liability cover; (12) Most of our systems use Enphase micro inverters so they are fully expandable and can have batteries added; (13) Our systems come with more than 50 pages of comprehensive documentation; (14) Enphase provide online monitoring for life. We handle all warranties on your behalf; (15) We always recommend purchase over lease if you can afford it;