Metalcraft Solar

PV Solar Solutions

Providing for affordable, sustainable living

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Metalcraft is pleased to now be offering a supply and installation service for solar products. This is a natural addition to our comprehensive range of roofing products and related services, enabling Metalcraft to offer the unique service of installing a roof, and a solar package at the same time. We are one of the few companies that can offer a nationwide service.

We have a range of domestic solar packages to choose from that are suitable for both new homes and retro-fitting to existing homes, so whether you are simply looking to reduce your power bills, or even to become 'energy neutral', we can advise you on a solution that will suit your budget. We are also able to advise and quote on commercial scale projects or 'off-grid' systems to suit your specific requirements if necessary.

What Is Solar Power?

Solar Power or 'Photovoltaic' (PV) converts sunlight into energy.. A photovoltaic solar panel (known as a 'PV panel' or 'solar module') soaks up photons from the sun and converts them into an electrical charge.

Benefits Of Solar

With residential electricity prices increasing an average of at least 5% per year over the last ten years – you can protect yourself from further predicted increases as you will only be paying for a portion of your power usage. The importance of sustainable living is increasing and energy efficiency is a popular selling point. PV Systems produce environmentally friendly emission free power.

Affordable And Reliable

Solar power provides affordable, sustainable living – saving you money by reducing your power bill. Solar is more affordable and reliable than ever before and offers an endless supply of clean and renewable energy for your home.

Metalcraft uses high quality NZ and international manufactured hardware that are endorsed by long term warranties (usually 25 years, guaranteeing power output. Inverter warranties range from 5 to 25 years).

Grid Connect Power

Your power bill can be heavily supplemented by installing a Grid Connect (or "on Grid") Solar PV system on your home or business. Solar Modules ('PV Panels') are usually mounted on the roof and when sunlight hits the panels, DC power is produced. This power is then sent to a Solar Inverter which converts the DC electricity to AC power which can then be used by your appliances.

Any surplus electricity your system generates is automatically exported back into to the main electricity grid and can further supplement your electricity bill.

Battery Integrated Systems

It is also possible to incorporate battery banks into you solar PV system. This is the case for 'off grid' situations where there is no connection to mains power supply; but it is also becoming increasingly popular in residential applications rather than exporting surplus power generated.

This doesn't mean you don't have a mains connection, rather you have the ability to store power generated during the day, when you are typically at work, this energy is stored in batteries for use in non-daylight hours. So effectively you generate, store then use the power yourself, meaning you avoid buying power in the evenings when cost per kWh is at it's highest. However you still have the ability to draw from the grid as necessary.

Although there is an additional cost to add a battery management system, the technology is developing rapidly and is anticipated to continue to reduce the cost and increase the lifespan of batteries.

PV Solar Packages

These solar generation options employ the conventional configuration of an array of aluminium encased crystalline solar collection panels that produce DC current. This DC current runs to the inverter unit located internally by the distribution board. The inverter then converts the DC current into AC power which is run through a breaker box and into an export meter. The export meter is the unit which monitors power feedback and draw down from the grid.

Metalcraft uses only well-known and respected, high quality hardware. Our panels are Renesola Virtus II, and inverters are NZ made Enasolar.

Compatible roof profiles:
All Metalcraft longrun and metal tile profiles. Please refer to PV Solar Packages data sheet for more information.

Solar Package Sizes

Systems begin at 2kW and will produce around 2770kW a year –that's a quarter of the average household's yearly energy. Your power bill will give you an accurate indication of your yearly kW usage and your PV provider will be happy to help you select the right system to suit your power requirements and budget. System sizes can be designed to provide up to 90% of a typical household's yearly energy use.

PV system size	Estimated annual energy yield for array (kWh/yr)*	Solar systems contribution to average household electricity demand**	Number of panels in system	Approx roof area required m2.	Pontential annual savings***
2.0kW	2770	34.80%	8	13.4	$ 693.00
3.0kW	4155	52.10%	12	20.0	$1,039.00
4.0kW	5540	69.50%	16	26.8	$1,385.00
5.0kW	6926	86.90%	20	33.4	$1,732.00
10kW Single Phase	14500	-	40	67.0	$3,625.00
10kW Three Phase	14500	-	40	67.0	$3,625.00

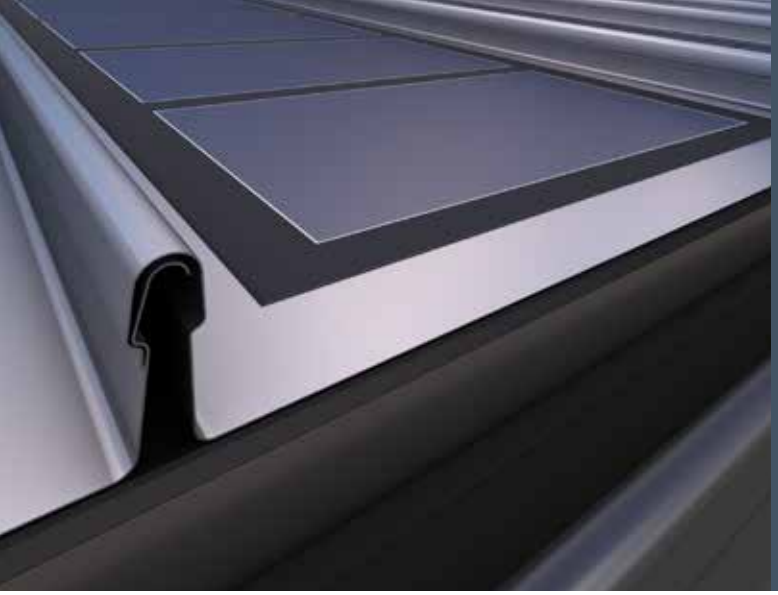
* Estimates are based on Auckland area with panels north facing, 30 degrees pitch, without shade interference
** Percentage of annual household average energy use is based on the household energy end use project (HEEP) for Auckland (Isaacs et al,2006)
*** Savings calculated on 25 cents/kWh energy costs that all electricity is consumed on site or exported at full retail credit

Micro Inverters

Micro inverter technology is a more recent development that is emerging. Instead of having one large inverter unit inside the dwelling, this system has a micro inverter discretely mounted on the underside of each aluminium encased crystalline solar collection panel. The energy generated immediately converts to an AC current before it leaves the panel along a 'daisy chain' wiring pattern that runs directly to the distribution board. This eliminates the need for a larger standalone inverter, and because the electrician is not required to deal with DC currents, the connection process is less specialised, safer & quicker to install overall.

Micro Replus

This is a good option if you wish to start small and build up the capacity progressively by simply connecting additional panels. The maximum size for a micro inverter system is usually 3.75kW.
Compatible roof profiles:
All Metalcraft longrun and metal tile profiles. Please refer to Micro Inverters data sheet for more information.



A contemporary looking roof profile with strong defined lines. espan™ is Metalcraft Roofing's new standing seam roof profile and is available in two widths.
PV solar laminates can be installed directly into the flat pan of espan® 470. Clip on solar panels can be installed on both espan® 470 and espan® 340 and allows for optimum solar enery generation. Please refer to espan® brochure for more information.

Solar PV Laminates

PV solar laminate strips are another alternate method of energy collection. The 136W laminates come in 5486mm fixed lengths that have a durable adhesive backing so that they can be laid directly on to the roof sheet. This system is best suited to Metalcraft Roofing's espan® 470 profile that has a flat pan with no suages which allows the laminate to achieve best adhesion and form a water tight seal.

This option is less visually conspicuous as they are only 4mm in height, yet very durable so they can withstand foot traffic without risk of damage. It is also less sensitive to pitch requirement so is well suited to low pitched roofs, or even as an integrated wall cladding system. However they are not as efficient in terms of generation as the conventional crystalline panels, so more material and roof area is required to achieve the same output. Therefore the cost is slightly higher than comparative kW options.

Compatible roof profiles:
espan®470 profile. Please refer to Solar PV Laminates data sheet for more information.

Mounting Brackets

There is a range of high quality aluminium and stainless steel mounting options available. The appropriate one depends on the roof type, roof pitch and in some cases, the orientation of the roof. There are solutions to accommodate all longrun and metal tile profiles, and even concrete roofing.

Our standard and micro inverter options require a bracket system. Depending on the profile of the roof this can either be a bolt hanger system which secures through the rafter for maximum hold, a bracket that is secured through the roof sheets, or a clamp system which eliminates the need for any roof penetrations. These are typically flush mounted for roof pitches of 20-35 degrees.
For roof pitches under 20 degrees, an aluminium tilt mounting system is also necessary for optimum results.
On any flat pitched roofs this allows the panels to be elevated to the optimum 30 degree pitch. This however will incur an extra cost above our standard rates which allow for flush mount brackets.
Please refer to Mounting Brackets data sheet for more information.

Installation

An on-site inspection will enable your PV System to be carefully positioned – ensuring maximum efficiency and output of your system. While sunny days produce the best conditions for maximum output of a solar power system, you can still generate substantial amounts of energy on cloudy days. PV solar is actually more efficient in cooler climates. With no moving parts, there is virtually no maintenance required for your system other than cleaning (if required) or ensuring tree growth does not become obstructive. Most PV Panels carry an output warranty of 25 years and are guaranteed to produce 80% of the rated power output at this time. Your solar system can be dismantled and moved to a new property if required.

Best Pratice

Metalcraft Roofing follows the best practice guidelines and training scheme of the Australian Solar Council in the absence of a NZ equivalent regulatory body.

We are also a corporate member of SEANZ.

AUSTRALIAN SOLAR COUNCIL
THE NATIONAL VOICE OF SOLAR
Corporate Member

SEANZ
Sustainable Electricity Association New Zealand

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Satisfaction guaranteed

Metalcraft Roofing has more than 50 years experience in the roofing industry which ensures your satisfaction is guaranteed. With 12 branches nationwide we pride ourselves on being New Zealand's largest and most established privately owned building product rollformer and installer with an extensive range of longrun roofing profiles, lightweight metal tiles. metal fencing, rainwater system solutions and a variety of solar generation solutions. We also have a structural steel and insulated panel division.

Contact us now:
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www.metalcraftfencing.co.nz

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