

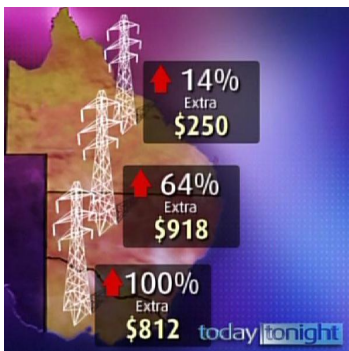
# Energy Fightback!

## Exclusive solar offer to HSA members

An opportunity window to secure premium solar feed-in tariffs and installation solar credits before they start winding back within a few months

Help counter spiralling power prices which we've all seen – even before any “carbon tax”.

The case for solar power for Mt Hotham clubs is compelling!



For a 5 kW system:-  
can generate up to \$4000 \* per year until at least 2024 (in revenue, credits &/or consumption offsets), predominantly banking summer credits at the premium feed-in tariff rate. Your lodge will now be earning income while unoccupied!

Not only environmentally desirable, but financially sound.

Significantly offset or possibly eliminate your winter power bills as well as saving 9,000 kg of Vict CO<sub>2</sub> emissions (per yr) and supplying grid energy when most needed – on hot summer days.

Did you know that solar power is optimised at high altitude?  
Benefit from high altitude efficiency due to higher solar irradiation levels and lower ambient temperatures.

We have assembled suppliers of fully certified components, designers and A-grade licenced installers accredited to Australian Standards and Clean Energy Council requirements.

Additionally, systems will be specifically designed and rated for Mt Hotham conditions - temperatures, wind and snow loads. They will be more efficient than in Melbourne.



Become part of the first alpine solar power community.

Special Offer: a 5 kW solar power system installed from a sensational \$15,500 \* (plus GST).  
As a coordinated community scheme – significantly less than individual installations (typically up to \$20,000 for 5 kW).

Register your interest by emailing [solar@hsa.asn.au](mailto:solar@hsa.asn.au) – NOW!

\* Based on the current Federal Government's solar credit scheme (reducing from 1/7/11), expected Small Scale Technology Certificate values (from 1/1/11, formerly known as RECs) surrendered on installation, the current State Government's premium net feed-in tariff, optimal array positioning with insignificant shading and assuming typical lodge usage and eligibility (clubs, community buildings, businesses and prime residences are normally eligible). Please note that each site will require a specific site inspection, detailed analysis and quotation to ensure optimal design and performance, taking account of building variations, consumption patterns, shading, roof type or orientation.

## FAQs

Hopefully we've covered most questions, but please contact us if we can clarify anything further.

1. What is the "community deal"? We are able to coordinate bulk supply contracts and combined, multiple site installations, saving on individual discrete projects. The systems and all components will be specifically designed for our alpine environment and buildings (not an "off the shelf" suburban system). Mt Hotham experienced the first Australian alpine geothermal heating installation, perhaps we can now be the first alpine solar power community.
2. What is the "opportunity window"? We are at the "sweet spot" of lowest component costs on record, maximum State & Federal Govt.. benefits and a premium feed-in tariff policy that suits most clubs.

Solar power installations for grid-connected sites currently qualify for generous solar credits under a Federal Govt.. program (refer the Office of Renewable Energy:- <http://www.orer.gov.au/squ/index.html>).

These credits apply to a first time installation only and start winding back from 1<sup>st</sup> July 2011. Although solar panels are likely to become cheaper in coming years, Government credits are reducing possibly at a faster rate. Also, in Victoria, many sites (including most clubs) are eligible for the premium net feed-in tariff (PFIT), which currently pays at least 60 c per kWh (plus GST) only while the scheme is open. The annual benefit is predominantly due to this 60 c PFIT (\$3500). But note that some retailers offer up to 68 c PFIT, suggesting up to a \$4000 annual benefit.

The solar credits, known as Small Scale Technology Certificates (formerly Renewable Energy Certificates or "RECs") have now been fixed in price (\$40 for wholesale market trades since 1<sup>st</sup> Jan 2011). These will be acquired and traded for a 15-year deeming period and credited against the installation price. In common with industry practice, the quoted installation price is the net price after these STC credits, applicable to our solar zone. In the event any club wished to independently manage or trade their STCs, an alternative quotation without the STC credits can be arranged on request.

3. What is the premium net feed-in tariff? This applies to exported solar energy (up to 5 kW max in Vict) in excess of your consumption in 30 minute blocks. In some states, a gross feed-in tariff applies, which covers all solar energy from the panels, regardless of how much you are using, but they usually pay a lower amount (the NSW gross rate was recently slashed from 60 c to only 20 c). The current Victorian scheme is open until either the total installed State capacity reaches 100 MW, the program cost exceeds \$10/consumer/yr or a change of legislation (which can occur any time at short notice). It has a fixed end date (1<sup>st</sup> Nov 2024), by which time normal power tariffs are highly likely to be in excess of 60 c anyway. One advantage of a net scheme, under Vict wiring requirements, is that you will always effectively receive at least the current retail price (for that time of day) while you are consuming more than you are generating (as it will always offset your recorded consumption first), unlike a gross system where they are separate and technically, a lower-than-retail FIT is possible (for example where a peak Time Of Use rate exceeds the FIT – which is already the case in NSW). The new State Govt. has indicated its intention to review the current scheme, investigating the possibility of a gross PFIT, however given the recent NSW experience if they did change to a gross scheme, few industry observers believe the 60 c tariff would be offered to new entrants in a gross scheme. The current net PFIT actually works in clubs' favour, assuming most clubs are substantially unoccupied, consuming negligible summer energy when the bulk of the solar energy (80 %) is received (between October and May). The key to maximising net FIT benefits is to minimise your consumption when the panels are generating power (essentially only during sunshine) – easily achieved when the lodge is shut, or if open, as much as practical delay running appliances during these times (dishwashers, laundry etc.).

In the event of any possible legislative changes, it would be prudent to sign up to our community program at the earliest opportunity. Further information about the State Govt.. PFIT is available at:-

<http://new.dpi.vic.gov.au/energy/policy/greenhouse-challenge/feed-in-tariffs>

4. Who pays for this premium Feed In Tariff? Technically, we all do. The 60 c/kWh is paid by the distribution companies (who don't normally buy any generated energy – they only deliver it). The distributors share the total feed-in cost across all consumers - apparently currently around \$2 per year per consumer - built in to our distributor tariff portion of our power bills. Although some question whether this is fair, it must be borne in mind that this energy is being acquired and distributed by the utilities without any other capital investment, normally associated with new power generation assets. It should also be noted that during very high demand periods (usually only in summer), the wholesale cost of power can rise dramatically, well above the PFIT rate.
5. Why are power tariffs rising so much lately? The industry is structured into three tiers – generators, distributors and retailers. As there is only one distributor in any area (the "transport providers" who run the street wiring and High Voltage (HV) feeders etc), they are monopolies, heavily regulated by the Australian Energy Regulator whereas the generators and retailers are free to set their own market-driven pricing. The distributor tariffs are the largest portion of our bills (accounting for nearly 50 %) are currently set and approved annually. These distributor tariffs only recover the distribution and transmission costs (ie the "electricity trucks and highways") whereas the retailers charge for both the actual energy (the

“payload” that they purchase from the generators) and their operating margins. The distributors (whose tariffs are the main drivers for our recent dramatic price escalations) frequently claim their rises are due to ageing infrastructure and the urgent need to upgrade to cope with the massive increase in summer demand, due to the widespread use of air conditioning (courtesy of low cost China manufacturing). We can be forgiven for feeling taken for a ride now that price regulation & caps have been removed from the retailers – a few years ago, annual rises were “modest”, not normally above the CPI, then as the CPI dropped, the rises started jumping in ever-increasing breath-taking leaps: 5 %, 8 %, 10 % & now 12 %. Since 2008, the “under the radar” Christmas-Eve announced 2011 rates will be a staggering 40 % higher (peak tariff). The truly scary aspects of all this are that none of the recent price rises have anything to do with impending “carbon tax” issues – yet to impact. When it does, we can be sure that’ll be the new excuse game in town.

6. Does the solar radiation vary? The suggested benefit assumes optimal un-shaded array positioning, based on official mean climate data for Mt Hotham which experiences natural yearly variations typically within a  $\pm 10$  % range, however over the last five years, irradiation levels have all been tracking well above the longer term mean.
7. What if we have several meters? Some clubs may have more than one power meter, receiving separate bills. For example separate clubs or businesses sharing a common building, effectively in a tenant arrangement. Although each tenant may qualify for a separate (5 kW max) installation, for a single installation, the tenant with the lowest normal consumption will receive the maximum PFIT benefit. You may also be able to legitimately arrange separate meters (on a tenant basis), except these will incur extra installation and annual costs, possibly also requiring a costly consumer mains upgrade. Another benefit of multiple meters is the ability to separately contract different power retailers – for example choosing a retailer offering 68 c PFIT who may not have the best winter consumption tariffs. Note that in this context “separate meters” refers to separately billed power metering – not separate peak and off-peak meters on a single account.
8. Do meters require upgrading? Most likely yes. Virtually no existing meters are likely to be capable of correctly recording the exported solar energy. Older “spinning wheel” meters will spin backwards during export, effectively crediting the exported energy at the current applicable tariff (typ about 25 c), but are incapable of separately registering the exported quantity for earning the PFIT (@ 60 c). Electronic (non-bidirectional) meters usually weren’t even credit anything (won’t “wind back”) - meaning you’re giving it away for free! Or in some cases, they may even count the exported energy as normal chargeable energy! The new AMI (“smart”) meters, currently being rolled out state wide are fully capable of recording the exported energy after programming, except we don’t believe any have been installed at Hotham yet. Hence a meter upgrade will normally be required and this needs to be arranged through your current power retailer (who will bill you directly), which we will assist with.
9. What about apartments? While many business and community buildings are eligible for the 60 c PFIT, for residential properties, only prime residences are eligible. However where the apartment is a club or business premises, it’s likely to be eligible. Check the DPI website (referred to above) for clarification.
10. How will solar affect my normal power tariffs? When requesting a premium feed-in tariff, in most cases, you will move to a different tariff structure, which must be studied carefully. These are likely to be Time Of Use (TOU) tariffs, which most clubs are probably already allocated. This must be discussed with your electricity retailer. TRU Energy is the default “last resort” retailer for Mt Hotham, however you can select from over a dozen retailers. We suggest shopping around for the best offers - although there is typically little variation in normal tariffs, with a PFIT, there may be a better selection of offers – some of which may not be readily viewed by internet searching and may even be better for your normal winter consumption as well.
11. What about snow covering the panels? We have sourced panels specifically rated for snow loads and the mounting system will also be designed for our alpine temperatures and high wind gusts. While snow will likely accumulate to some extent in winter, this is also when the generation benefits are lowest – when there’s unlikely to be any significant net export (that will earn 60 c PFIT) and radiation levels are lowest. The main PFIT benefit is the banking of summer credits, assuming limited winter contribution. Solar panels have a smooth surface promoting snow shedding, depending on their mounting angle. Canadian experience suggest a 60 degree angle to be optimum for quick self-shedding, but many Hotham roofs are less than this – OK for our wetter snow. Lower angles (less than our 37 ° latitude) will improve summer generation. Normally panel mounting will be parallel to the roof pitch, however alternative arrangements may be appropriate in instances where insufficient north-facing, un-shaded roof area is available. Most clubs are likely to have sufficient roof area to accommodate 5 kW arrays (33 m<sup>2</sup>).
12. Have solar panels been installed in snow areas before? Perhaps not much in Australia, but elsewhere most definitely yes! Very common in Europe and North America – in most cases with significantly less solar radiation. We gain from their experience.
13. Are low temperatures a problem? The systems will be specifically designed for Hotham temperatures as panel characteristics are very temperature dependent. A major bonus is that our lower temperatures will increase their efficiency in all seasons (not only summer) as well as avoiding the heavy de-rating effects in extreme summer temperatures. In addition to higher solar radiation levels at high altitude (due to less atmospheric attenuation) - solar panels *love* high altitudes! In fact it’s likely they will generate greater output than most low altitude Australian locations on hot summer days. In essence, the lower the temperature, the higher the altitude, the better (perfect for Hotham).

14. What about panel shading? This should be avoided during the prime times of 9 am – 5 pm in summer (preferably longer). Even the slightest shading (from a small branch, chimney or mast) should be avoided. Panels are string-connected and any shading will substantially limit the entire output – not just the small shaded area. In most cases, club roofs are high enough with little or no tree shading (snow gums are rarely very high). Shading considerations are a major factor in the design of the array and its positioning.
15. What maintenance is required? You will be provided maintenance information on the specific components used, however both the panels and inverters are renowned for high reliability and very low maintenance. The prime issue is to ensure the panels are kept clean and free of shading for maximum efficiency, but the frequent and often heavy Hotham rainfall should keep them effectively cleaned.
16. But we turn our power off when unoccupied. This is no problem provided the solar array is installed with a separate main switch so that it continues to deliver grid power and valuable revenue when unoccupied.
17. Any other costs? The bidirectional power meter upgrade will be charged directly by your current retailer. The estimated price offer is based on a deemed standard installation, however we stress that for every site, an accurate design and quotation will be necessary to both optimise performance and ensure correct installation to suit the building, location, roof type, orientation or address other specifics that may be required. We emphasise that no two buildings are identical and a “one size fits all” approach invariably suits none. In addition, we recommend considering remote performance monitoring as an option.
18. Are there different premium feed-in tariffs? All Victorian power retailers (with 5000 or more customers) are required to offer the 60 c PFIT as a credit for at least 12 months as a minimum. Most companies offer to pay out any excess credit at least every 12 months. Some retailers offer a slightly higher PFIT – up to 68 c (plus GST). However, you need to balance this with their other tariffs for your normal power consumption.
19. What Components are used? All equipment and components are high grade, fully certified to Australian Standards, European (IEC, TÜV &/or VDE) and Clean Energy Council requirements. Panels will be high efficiency mono-crystalline (the highest grade) and inverters will be correctly sized and matched for the installation.
20. Who installs? The design and installation will be performed by fully qualified and accredited contractors, to Clean Energy Council standards (the reference authority for Australian solar power installations). Installers are also A-grade licenced electrical contractors, fully qualified to perform any connections or modifications to a building's electrical installation. An electrical safety certificate will be provided and all solar installations will be inspected by an independent, licenced electrical inspector.
21. Warranties? Panel arrays - 5 year product warranty and a concurrent 25 year limited warranty on output. Inverters – 5 year product warranty standard with extended warranty plans available as an option.
22. Documentation. Comprehensive documentation will be provided for each installation, including operation & maintenance manuals for the panels and inverter, shutdown procedures, installation diagrams and records, warranties, array engineering certification and performance estimates.
23. Can I Upgrade in the Future? Possibly – but in reality not beyond 5 kW with the 60 c PFIT under current Govt. policy. However different Federal Govt. incentives apply. The current 5 kW offer embodies the maximum current solar credits, available for a 1<sup>st</sup> time installation for the first 1.5 kW (until 1<sup>st</sup> July 2011) and will qualify for standard Small Scale Technology Certificates beyond 1/7/11 for any extensions. It will also qualify for the maximum premium feed-in tariff (5 kW) while this scheme is open to new entrants. Beyond 5 kW, the standard feed-in tariff would apply for all solar generation, not just the excess above 5 kW - at about 20 c/kWh or the current retail rate, up to 100 kW (although it's unlikely any club could accommodate a 100 kW roof top array). Currently, arrays larger than 5 kW (foregoing the 60 c PFIT) are only likely to be a option where an installation is unable to benefit from the net PFIT – whether ineligible or is continuously occupied with substantial year-round consumption.

Regardless of future possibilities, it is strongly recommended to match the inverter for the current installation. We do not normally recommend oversized inverters for “future proofing” as this may compromise system efficiency. Inverters need to track the maximum power point of a given array for optimum efficiency and if adding extra arrays at a later date (could be different models or technologies) it is unlikely they will perfectly match the original array performance.

24. Can I consider smaller than 5 kW systems? Certainly you can. Although a 5 kW system will reap the maximum benefits, smaller systems are still possible, naturally with smaller benefits. We can provide performance estimates to assist your analysis.
25. Is this offer also available for my home or business? Certainly yes – for HSA members. Please contact us for more information.
26. Performance Monitoring. We strongly recommend and endorse monitoring of not only your solar generation but your entire power consumption. It is a well-known fact that the majority of us have little or no idea of our energy consumption or our tariffs other than becoming enraged every time we receive a bill. Web-based real time energy monitoring is the first and most important step to understanding what we're using and is a low cost, highly effective tool in doing something about it.

By arming ourselves with the data it has been widely proven to result in substantial savings even before spending anything on equipment or plant upgrades. We can assist in a range of monitoring systems for your lodge, home or business, some of which offer free web portals (such as the widely acclaimed "Google PowerMeter").

27. How can monitoring my energy reduce my consumption? Very easily. You will likely be astonished at the relatively high level of standby consumption you are using – much of which is often avoidable. While it might not seem large, integrated over 24 hrs/day, 365 days/year, the cost can be frightening. You will be able to understand patterns, identify problems and able to make informed decisions. Turn appliances off at the wall where possible or consider using standby override switches (for example that can cut off a whole power board when the TV is turned off by its remote control). A common excuse avoiding this is the loss of clock settings – however there are usually alternative methods to overcome that. Use timers or sensors on lighting to minimise unnecessary lighting. Shifting consumption to maximise off peak tariffs is another highly effective action – many major appliances (such as dishwashers, washing machines & dryers) offer delayed start options (check their manuals). Another major tactic is to use laptops instead of desktop PCs where possible – many laptops consume only the power of a desktop on standby, as well as being more immune from supply interruptions.
28. My solar array at home doesn't seem to make a difference, how can this be different? There are several factors to consider – in this case, most sites will be delivering significant grid power while the buildings are unoccupied (not consuming any power). And 5 kW arrays will make a difference. Most domestic installations are either 1 or 1.5 kW arrays, with many houses unable to accommodate a 5 kW array (requires 33 m<sup>2</sup> of unshaded northerly aspect) and they may not have been optimally designed ("site unseen"). With most houses running significant daytime loads from a variety of modern appliances, many in standby mode, the opportunity for the solar panels to produce surplus energy is significantly reduced. We will assist you in planning for your solar installation and your energy management. We also recommend monitoring your energy in real-time, as this has been widely proven to be the most effective tool to minimise consumption and maximise performance. By taking a few simple steps, you can also significantly improve the effectiveness from your home solar panels.
29. Where did solar feed-in tariffs evolve from? Germany is credited with developing a highly effective gross feed-in tariff policy on a national scale (actually first implemented by President Carter in the USA in 1978). Since 1990 commencement, its widespread take-up has delivered Germany a solar capacity of over 9,000 MW, almost equal to Victoria's peak summer demand. (Significantly, our current feed-in tariff policy has a petty 100 MW State cap – in a country with 50 % greater solar insolation levels). The spectacular success of the German policy has now been widely adopted worldwide, stimulating massive manufacturing growth, dramatically spurring development and driving down component pricing. Solar panels are highly visible statements and remain a prime choice for most consumers desiring of energy independence. Of equal benefit is the increased awareness and focus on energy efficiency measures by most consumers when installing solar panels (usually keen to maximise their system's performance).