Dear Committee Members,

First, thank you for inviting me to provide additional comments on this important subject.

Initially, I would like to re-iterate the illogical position of imposing any form of means test on the practical and beneficial use and implementation of alternate forms of energy and conservation of same for the benefit of all. Means testing any area of solar technology merely discourages people from considering exploring the many possibilities. There is no basis for discriminating against anyone prepared to explore these possibilities based on their income.

Considering Solar Power is a natural energy source waiting to be harnessed in increasing and more wide-spread ways it is logical to pursue this with a more fervent and aggressive approach. Because Solar Power can be used in multiple ways, expanding Government use of, and assisted programs and creating new ones and supporting them makes a lot of sense for now and the future. Especially now for the future.

Two common areas of Solar Power use currently exist and are relatively easy to comprehend:

1. Solar Power used to heat water
2. Solar Power used to generate electricity via solar photovoltaic technology (or PV [Solar] Panels as they are commonly referred)

Installations of the first form exist in Australia – many as a result of a push some 10-15 years ago as "the latest and greatest" way to save personal energy costs. A great idea indeed and adopted by a handful but alas, the impetus seems to have ebbed by the wayside. None-the-less, this is still a very real and practical thing to pursue for more reasons than were realised at that time. I will comment more on this later as part of what needs to be considered as Research and Development (R&D).

The second and immediately current issue is that of PV systems. This is an area that needs immediate and on-going focus in order to exploit its potential more fully. Because this technology is relatively new in terms of its commercial viability it is initially very expensive however it must also be realised it is a form of power generation that requires almost zero maintenance – depending on the type of installation deployed. Given a basic PV installation comprised of PV panels and a grid-connected inverter there is an almost zero maintenance cost and to add to this the PV panel manufactures generally provide a minimum 20 year warrantee. This in itself is an outstanding attribute and has no equivalence on any other product that I am aware of.

Before I address some of the other points raised in my original submission, I'll provide some background to allow these comments to demonstrate their perspective and relevance in a realistic and practical way.

We live in a semi-rural area in north eastern Tasmania. This area by way of its very nature of sparse population, high vegetation density and storm activity lends itself to quite intermittent and sometime disrupted grid supplied power.

A prime example: A few weeks after we arrived in Tasmania in early 2004, we were subjected to a loss of electric power for some three days. This is a very real but unusually long example but none-the-less my point is that sometimes grid power can be affected easily and it can take some time to restore services fully.

At other random and sometimes frequent times we are subjected to both power fails lasting between several minutes or multiple hours and numerous brown-outs which can by their definition be from several milliseconds to several seconds. These kinds of power disruptions can be the most damaging kind as they place enormous stress on electronic components. Notice how most electronic failures occur at switch on time? I can explain why this is so but will defer at this time. I am a licensed Radio operator and have been involved in the television, electronics and computer industry for over 30 years as both full-time employment and as a hobby.

With a suitably designed PV system which includes a form of battery backup bank, the above scenario can be avoided to varying degrees depending on the size of the battery bank and/or the configuration of the installation. By this brief example, I have demonstrated a way of easing disruption to services and other potential damage to equipment and situations while placing less demands on other public infrastructure and service organisations in addition to avoiding possible claims to Insurance Companies.

To expand on the above, my immediate and full-time (work from home) job is within the computer industry providing consulting and support services for Customers. The bottom line in this regard is that without power, I cannot work. The same statement can be applied to anyone who requires electric power in order to perform their job. A few examples would be appropriate:

1. Anyone who needs to use any device that requires electric power to function
2. I've made my point here because there isn't much that doesn't need power these days ;-)

In our particular situation, we address this issue by way of a mains connected uninterruptable power supply (UPS) and an external, manually operated standalone generator. When power fails, the UPS batteries provide power for me to continue working and/or to provide the time needed to disconnect the UPS from the mains power point and reconnect it to the generator so I can keep working until mains power has been reliably restored. A PV system of suitable size and design would enable the omission of the generator.

Because of the means test and our "household" income, we are completely ineligible for any government assistance. The unrealistic limits placed on how many subsidised Watt's are permitted per installation is also of little use in our particular situation because being a full time tele-worker, my power demands are probably higher than many others.

The above example provides support of a PV system that can help alleviate the need for a noisy fossil fuel based solution to one of a more eco-friendly solution however, again, costs become an issue and places such a solution out of our reach.

To address some of the comments regarding what more can be done by Government and to also expand the more information indicated above, here is a brief list of some areas along with supporting comment. These items are in no specific order nor are their supporting comment points. This is by no means exhaustive and I am but just one individual.

1. Provide R&D grants for further development of Solar Power
    a. As mentioned above about solar water heating and solar PV systems, provide funding to research the merging of these two technologies. For example, a limiting factor in PV wattage is the ability to dissipate the heat in the PV panel. Provide for the marriage of water heating within the PV panel to accomplish both water heating and electric power generation within the same panel. Keeping the PV components cooler is more efficient. Some benefits of this are pretty obvious especially in terms of roof area needed. A Queensland and South Australian University are currently at the fore-front of newer PV technology developments – perhaps more incentive should be given to private companies.
    b. This might encourage more business start-ups and help small business development as well

2. Introduce or Re-introduce rebates for Solar Hot Water Heaters
    a. Most hot water heaters have a limited life span of between five to fifteen years. Demand for same encourages manufactures and consumers to continue tradition
    b. Provide rebates for replacement and/or new systems that use Solar as a primary and/or secondary heat source
    c. Encouraging Solar use will perpetuate adoption and encourage manufacture and R&D efforts.
    d. And so forth; the flow ebbs

3. Provide PV systems for Emergency Services
    a. During times of natural or man-made disasters, the Amateur Radio Services carries vital communications. Part of the infrastructure that provides this service is delivered via un-manned repeater stations. These repeaters could be supplied power via PV systems suitably sized (with battery backup) to provide electricity to the grid as well as power the stations themselves. I mention this because the location of these repeaters is often in an ideal location to benefit from full sun with a good PV yield. (Ie: Repeaters are positioned to provide good radio coverage and are therefore located at higher altitudes). Because the general use of most repeaters is at best intermittent, most power would be available to the grid. Of course, during power fails these stations would still be operational via PV panels or the batteries and allow emergency communications to continue. Co-ordination and placement

of this should be consulted with via the WIA (Wireless Institute of Australia)
    b. Amateur Radio Operators are renowned for their experimental nature so encouraging this as a side-effect may also help generate more Amateurs and therefore more R&D.

4. Permit people to choose the size of their own installation
    a. Rather than impose hard limits on PV installs, allow an installation to be sized according to the needs and affordability of the installation. If certain installations need more power then so be it
    b. At the same time, if it isn't being used directly then more power is available to the grid to benefit others.

5. Provide a separate or additional subsidy for battery backup (battery bank) PV installations
    a. Not everyone needs nor necessarily wants battery backup
    b. Battery banks are designed to provide power in a PV system when no sunlight is available and are of no direct benefit to the general populace because they can only provide power to the specific installation.
    c. This is wonderful for people like us who suffer frequent power fails but such systems are not permitted to feed the grid from battery power because this represents danger to power line workers
    d. Allowing subsidies for batteries helps those who benefit for example off-grid or remote installations
    e. There is currently no allowance for battery systems in this scheme
    f. Batteries may have a lifespan of between 10 to 15 years with current technologies and this itself lies some 25-50% less than the warrantee on PV panels
    g. Batteries used in PV installations are very, very expensive components

6. Allow more than one installation per registered voters name/address
    a. People may have either investment properties or holiday "homes". Allowing PV installations on these in addition to permanent residences of those who install PV systems would benefit more people in the following ways:
        i. Holiday homes are largely un-occupied allowing most power to go to the grid for others
        ii. Investment properties, ideally rented out would allow the tenants to save money thereby allowing them to potentially purchase their own homes sooner. Having been exposed to Solar technologies may encourage them to follow suit. Having them build sooner helps the building industry
        iii. For un-occupied residences, all power is available to the grid for others

7. Allow those who chose to disconnect from the grid to do so
    a. Those who do this place less demands on the grid and its support infrastructure
    b. Disallowing them to do so is a form of discrimination denying their rights to be self-sufficient tax paying individuals

8. Allow those who choose to not connect to the grid to do so
    a. As above for 5a and 5b
    b. This also saves the installation and materials and their costs used to make connections – especially for rural and/or remote sites
    c. Disallowing this also places extra demands on peoples resources because they either have to increase their expenditure on making a connection or allow a larger PV installation – generally those who elect items 5 or 6 will also be forced to go for an alternate power source – usually a fossil fuelled generator

9. Allow and Encourage hybrid systems
    a. Hybrid systems may include PV, Wind and/or water generation components. All of these components are initially expensive, have their limits and their benefits and flaws however, having such systems that can be grid-connected allows for more benefit to a larger population.
    b. Currently I know of no government assistance for either wind or water based generation systems
        i. There should be. For example, water based systems are initially considerably less costly than both PV or wind based systems
        ii. Water based power generation systems generally provide considerably more power more continuously than other systems
        iii. Both water and wind based systems are eco-friendly and help reduce demands on our limited fossil fuel reserves
        iv. Many installations using wind or water use their excess energy to heat water but if it's already hot why not enable excess to feed the grid for others if possible?
    c. There are many sites that could take advantage of this including yours truly – water in particular
    d. Designed and installed properly, these would have minimal or zero environmental impact
    e. Wind however may present a noise problem in non-rural areas
    f. Not everyone can use wind or water power but why not encourage those that can?

10. All new buildings be they commercial or residential should be equipped with both PV and Solar Water heating systems
    a. This is a no-brainer. It makes sense to do it. Perhaps the cost could be subsidised by both the Government and the lending institute by way of lower interest loans over longer periods. A 20 year warrantee on PV panels is almost as long as most home loans anyway. As a absolute minimum one kilowatt PV systems would be a good start. A side effect of this would be building orientation, it would encourage orientation to take more advantage of natural resources thereby reducing energy demands. So this is really a two-way or double benefit.

11. Encourage the installation and use of lower power and more efficient lighting

a. In addition to the now more common low-wattage “instant on” fluorescent bulbs usable in bayonet and screw fittings, latest technologies have LED (Light Emitting Diode) based lighting
b. These LED based lighting components can consume magnitudes less power than even the low-wattage fluorescent bulbs
c. Higher demand for both of the above will drive prices down further and encourage more wide-spread use
d. Newer LED technologies reduce power demands thereby allowing for more efficient PV installations
e. A form of rebate could be applied here to demonstrate eco-friendly practices
f. This is not limited to just those seeking PV systems but to everyone.

12. Install PV systems on existing stadiums and other seldom used structures
    a. Sports stadiums are infrequently used and often used during non-daylight hours.
    b. Installing PV systems on these (often large) roof areas would feed the grid offsetting the power used by their after-hours lighting for when events are in progress
    c. Likewise with schools, TAFE’s or other Government owned facilities for the same reasons – particularly school holiday periods.

13. Provide funding for Business Start-Ups
    a. Encourage Australians to get involved in some of the available slices of these markets
    b. Offer rebates/discounts on education and training programs
    c. Expand the Educational Institutions Power Generation curriculums to provide well balanced training and education

Before the means test, many people started taking risks to get involved, learn new skills and started to provide jobs for others. The means test has decimated this. Refer to many of the other submissions regarding this inquiry.

Some of the above may be a tad off-track with direct reference to an inquiry into Government subsidies and means tests for people however, they do start to address larger issues that already affect all of us now for the future.

I trust the above is of some use and should you have any need for additional information or clarification please do not hesitate to contact me.

Sincerely,

Harry Eleftheriou