Clean Energy Council

Sue Morrison
Manager, Energy Policy
Office of Energy Planning & Conservation
Department of Infrastructure, Energy and Resources
9/10 Murray Street
Hobart TAS 7000

Dear Sue,

Clean Energy Council Submission to the Tasmanian Government's Feed-in Tariffs Discussion Paper

Thank you for the opportunity to comment on the Tasmanian Government's Feed-in Tariffs Discussion Paper.

The Clean Energy Council (the Council) is the peak body representing Australia's clean energy industry. The Council is a member-based industry association representing businesses ready to innovate, invest and act to meet Australia's energy needs safely and reliably while lowering greenhouse emissions. Our member organisations cover a quarter of Australia's total electricity production and are involved in renewable energy, gas, energy efficiency, and distributed generation including solar PV, solar hot water and cogeneration. Our members are committed to tackling climate change while developing a robust clean energy industry.

Feed-in tariffs, when well designed have been extremely successful overseas and have achieved multiple benefits for greenhouse gas abatement, addressing electricity network challenges and the clean energy industry.

This is an excellent opportunity for Tasmania to play a major role in Australian feed-in tariff policy development and be at the forefront of support for distributed clean energy technologies like solar PV, by legislating and implementing an effective feed-in tariff which will provide a strong incentive to drive the uptake of renewable energy.

The Clean Energy Council strongly supports a feed-in tariff scheme which:

- is based on gross metering;
- provides investment certainty and ensures renewable energy system owners achieve a reasonable payback period on that investment;
- extends to all sectors not just the residential / domestic rooftops but supermarkets, shopping centres, community halls, factories, distribution centres.

Please find following our comments on the Discussion Paper. In order to present our comments in logical sequence we have not precisely adhered to the topics as addressed in the discussion paper, however we have highlighted the relevant questions as asked by the Discussion Paper, which are addressed in each section. If you need amplification or have any questions on this issue please contact Andrea Gaffney on ph: 0403 127 514 or email: Andrea@cleanenergycouncil.org.au

Yours sincerely,

Matthew Warren
Chief Executive Officer

Clean Energy Council

Submission on the Tasmanian Government Feed-in Tariffs Discussion Paper

November 2008

Suite 201, Level 2,
18 Kavanagh Street Southbank 3006
Tel. +61 3 9929 4100
Fax. +61 3 9929 4101
www.cleanenergycouncil.org.au

1. What policy objectives are we seeking to encourage by implementing a feed-in tariff?

2. Can you identify any other benefits from stimulating take-up of embedded solar or other renewable energy?

A feed-in tariff delivers against a number of policy objectives. These include: accelerating the uptake of renewable energy at low cost; stimulating industry development and innovation of solar photovoltaic technology and other embedded renewable energies; reducing greenhouse gas emissions by lessening reliance on non-renewable energy sources; and encouraging local distributed generation, thereby reducing load on the network and distribution losses.

The most widespread type of distributed generation currently deployed in Australia is photovoltaic cells (solar PV). Professor Ross Garnaut's Climate Change Review Final Report refers to solar technology as one area with the potential for exceptional value within Australia[1]. With Australia's target of lower emissions, solar PV has the potential to play an important role in helping to achieve those targets using Australia's abundance of natural light and competitive advantage. The development of the Australian solar PV industry can be enhanced by Federal and State Governments' commitment to renewable technology.

Solar PV can make an important contribution to the network through reducing the load on the network and reducing distribution losses

Solar PV is a technology that provides many benefits currently unrewarded in the Australian energy market. Solar PV is embedded generation, producing electricity in our urban environment where it is needed the most. Currently, owners of solar PV systems are not remunerated for the true value of their electricity – neither for the value of the energy, nor for the demand management benefits to the network that the system provides. The introduction of a well-designed feed-in tariff will assist in rectifying this imbalance.

According to an Access Economics Report on '*The Economics of Feed-in Tariffs for solar PV in Australia*' commissioned for the Clean Energy Council, transmission and distribution losses averaged 5.6% in Australia during 2006-2007[2]. A greater reliance on solar PV systems can reduce this lost capacity by bringing the source of production closer to the final point of use. The Discussion Paper recognises that Tasmania is currently facing pressure on electricity supply due to reduced storages supporting hydro-electric generation. With reduced water flows, Tasmania is currently heavily dependent upon electricity imported from the mainland over Basslink. Increased penetration of other renewable energy technologies such as solar PV will reduce pressure on Tasmania's water storages and allow the water to be dispatched at times when it is of most value to the market and hence bring greater returns to its owners. Garnaut pointed out that Tasmania has relatively high loss factors and states "embedded generation does not suffer transmission losses to the same extent as generation located far from demand centres".

Garnaut said embedded energy generation such as solar PV can reduce the engineering requirements of the system to the extent this allows deferral of network augmentation. The Discussion Paper relates the deferred network augmentation directly to peak generation and peak demand, however it doesn't take into account the increasing reliance on Basslink or the likelihood of declining hydro electricity generation in Tasmania as a potential long term impact of climate change. Average temperatures in Australia are similarly expected to increase over

[1] Garnaut Climate Change Review – Final Report
[2] Access Economics - The Economics of Feed-in Tariffs for Solar PV in Australia

time, already reflected in increasing average maximum temperatures in south-eastern Australia. One likely effect of this would be the increased installation of air conditioners resulting in a change in the peak demand profile. The output from a solar PV system has been shown to coincide with peak demand profile in other parts of Australia and the Council contends the potential for this to be pertinent in Tasmania in coming years.

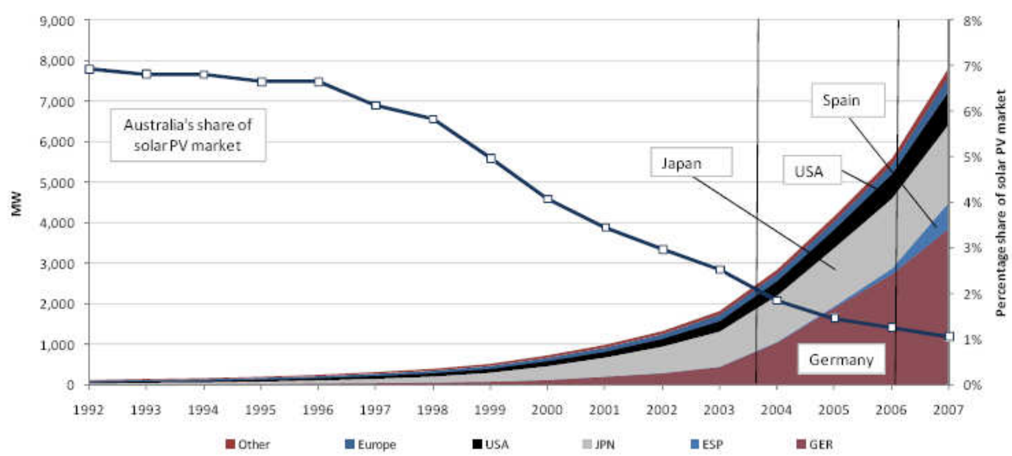
Encouraging uptake of and stimulating innovation in renewable energy technologies

The implementation of the Federal Government's Carbon Pollution Reduction Scheme and the national Renewable Energy Target will not be sufficient to drive the uptake of solar PV on their own. An additional policy measure in the form of a gross feed-in tariff is required to bridge the economic gap that exists and fairly value and reward investment in solar PV. Analysis by Access Economics indicated this gap would still exist even with a high carbon price.

International experience with Feed-in Tariffs

Global demand for solar PV increased 62 per cent from 1,744MW in 2006 to 2,826 MW in 2007 with Germany and Spain leading the way. Annual global growth averaged 47 per cent in the last five years and has been a direct result of policy intervention. Feed-in tariffs have been the most successful form of policy support for solar PV, demonstrated by the rapid development of solar PV industries in the countries that have implemented them. The implementation of feed-in tariffs in Germany, Italy and Spain sparked a swift increase in the growth rate of solar PV in these countries as can be seen in Figure 1 below.

FIGURE 1: GLOBAL SOLAR PV INSTALLATIONS (CUMULATIVE)



Source: IEA (2008)

As of 2007, feed-in tariffs were utilised in 18 EU member countries, as well as numerous other countries including Brazil, India, Israel, Korea, Nicaragua, Norway, Sri Lanka, Switzerland, and Turkey[3].

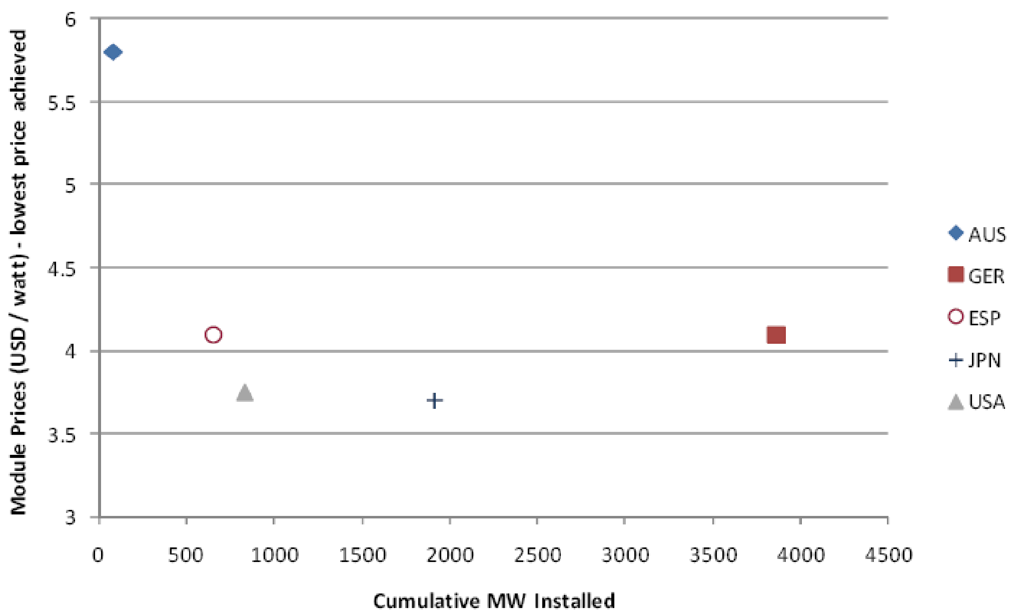
Drawing on the experience of the effect of feed-in tariffs on the uptake of solar PV in other countries and the responsiveness of the Australian market to the Solar Homes and Communities rebate program, it is anticipated that the Australian market would respond in a similar way with the implementation of a feed-in tariff.

Cost Reductions in Solar PV

The Discussion Paper links the use of feed-in tariffs to stimulate greater innovation in renewable technologies to the necessity of realising cost-effectiveness in the technology.

The International Energy Agency (IEA) finds that increased demand for solar PV has been accompanied by falls in PV system prices in overseas markets. Countries with higher solar PV installation have achieved lower costs as is displayed in Figure 2 below taken from the Access Economics Report. Countries with higher solar PV installation have achieved a lower USD per watt of approximately US $4 compared to Australia with a cost of US $5.80. So far the take up of PV in Australia has not been sufficient to realise the economies of scale in production as seen in countries such as Germany[4].

Figure 2 - Indicative Module Prices (USD per watt)



Source: Access Economics (2008)

[3] Rickerson, W. and Grace R.C (2007) The Debate over Fixed Price incentives for Renewable Electricity in Europe and the United States: Fallout and Future Directions. A White Paper, prepared for the Heinrich Boell Foundation.
[4] IEA Photovoltaic Power Systems (2008) Trends in Photovoltaic Applications

This trend overseas of lower prices would be expected to be mirrored in Australia with the introduction of policies such as a feed-in tariff.

Solar PV already has a strong record of cost reductions over time and this is expected to continue

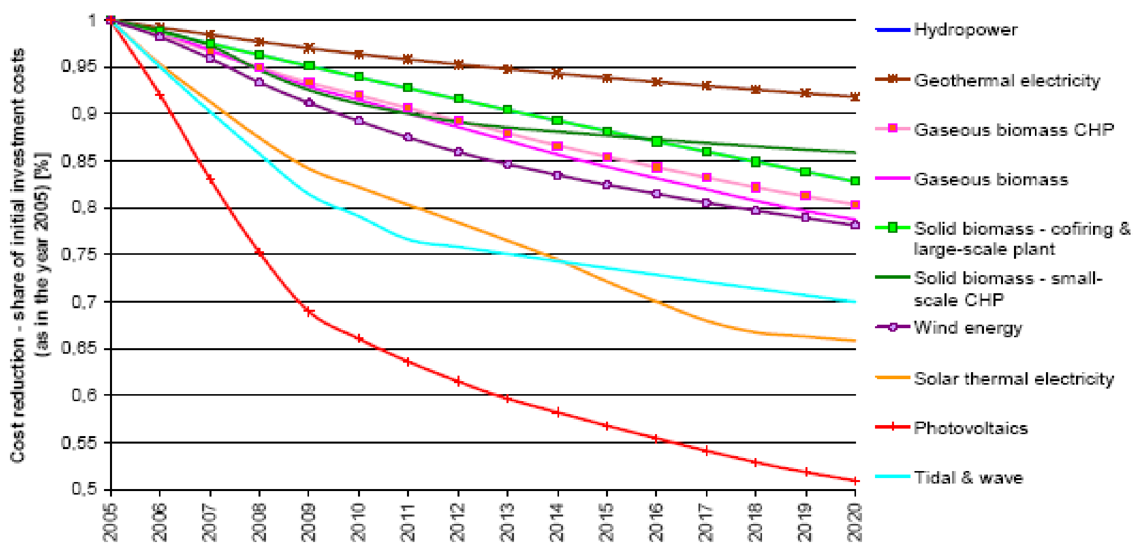
The European Commission (EC), in their recent *Communication from the Commission to the Council and the European Parliament* on the Renewable Energy Roadmap, reported that photovoltaic systems are more than 60 per cent cheaper today than they were in 1990.

The Communication provides a brief overview on the current contribution made by renewable energy in the European Union (EU). It looks at the EU's target of 20 per cent renewable energy share of gross inland consumption by 2020, how this could be achieved and what the impact of achieving the target would be. Modelling undertaken for the Commission in the development of their 20 per cent by 2020 target for renewable energy looks at how the concept of learning by doing impacts on costs going forward:

"These cost estimates take into account the fact that the unit costs of renewable energy, like other innovative technologies, tend to fall over time as practitioners gain experience. If the volume of use of a particular technology grows more rapidly, experience will be gained more rapidly and costs will fall more rapidly." The modelling forecasts that under a scenario of meeting this target with *"similar efforts across each sector and across technologies"*, there will be continuing cost reductions for all renewable technologies except hydro power out to 2020. In particular, the cost of solar PV is likely to fall by 50 per cent between 2005 and 2020. See Figure 3 below, (extracted from the C*ommission Staff Working Document* accompanying the '*Communication*' document) which depicts these estimated rates of unit cost reduction for each of the different renewable generation technologies between 2005 and 2020.

The IEA predicts that potential future solar PV capital cost reductions between 2005 and 2010 could be 5 per cent per annum and 4 per cent between 2011 and 2025. The increasing supply of silicon and increase in conversion efficiencies are also expected to reduce costs.

Figure 3 - Estimated rate of unit cost reduction for renewable electricity generation technologies Source: European Commission



Research and development is important to deliver these improvements. Typically energy generation technologies do not emerge out of a lab technologically mature and commercially competitive. Developers and the customers who use the technologies still need to gain field experience with them and the larger the volumes of product deployed the more they learn and consequently the better they get at using and producing the product.

Solar PV is a critical technology to the long term abatement task. Deployment policies implemented now should be seen as part of a broader investment to drive lower cost low emissions energy technologies in the future.

Reducing greenhouse gas emissions by lessening reliance on non-renewable energy sources

Renewable energy exported to the grid displaces generation from other non-renewable energy sources which would have otherwise been required thus reducing emissions. On the national electricity grid where the vast majority of energy is supplied by coal-fired generation, the majority of displaced generation will be from this source. A report by MacLennan Magasanik and Associates for Sustainability Victoria, found that for wind generation in Victoria, wind power displaced between 0.9-1.1 tonnes of CO2-e per MWh of energy generated.

If we are to successfully address the threat of dangerous climate change, it is important that development of near zero emission technologies such as solar PV are accelerated to bring down their costs, improve their performance and reliability, and to learn about how to best integrate these technologies within a wider technological and social system. The Stern Review noted that, *"The urgency of the problem means that technology development may not be able to wait for robust global carbon pricing. Without appropriate incentives private firms and capital markets are less likely to invest in developing low-emission technologies."*

According to the UK Government's Stern Review *"The power sector around the world will have to be at least 60%, and perhaps as much as 75%, decarbonised by 2050 to stabilise at or below 550ppm CO2-e[5]."* The Stern Review notes that constraints acting on individual technologies and energy security issues mean that a portfolio will be required to achieve reductions at the scale required. Early development of economically viable alternatives also avoids the problem of 'locking in' high carbon capital stock for decades, which would increase future abatement costs.

Policies to encourage low-emission technologies are an important hedge against the risk of high abatement costs. This investment in clean energy technology development and deployment is not costless. Increasing the scale of deployment of distributed generation technologies like solar PV is part of this investment.

Additional benefits from stimulating take-up of embedded solar or other renewable energy

The development of a solar PV industry in Tasmania will create "green collar" employment. The solar PV industry is already delivering jobs and investment for Australia. According to the IEA, in 2007 the solar industry employed 1,660 direct jobs around Australia in that year. It has also been conservatively estimated that in 2004 the industry generated approximately 2300 indirect jobs through its economic stimulus. Yet this is only a small fraction of the potential for

[5] Stern, N Sir (2006) Stern Review: The Economics of Climate Change, available from www.sternreview.org.uk

employment creation within this industry. Access Economics analysis on IEA data demonstrated a strong relationship between employment and deployment.

Growing a strong solar PV industry is a significant economic opportunity for Australia.

There is the capacity for the Tasmania to claim a larger share in this growing industry. A well designed feed-in tariff would result in the expansion of Tasmanian solar PV industry across retailing, distributing, designing and installing systems.

A greater diversity in sources of energy will also enhance energy security. There is thus a type of externality from creating a new option in terms of risk reduction as well as potential cost reduction.

3. What rate should apply for a feed-in tariff, and should the metering be based on net consumption or on gross generation?

Experience has shown that feed-in tariffs are successful at driving the uptake of solar PV at low cost. A recent study on feed-in tariff best practices based on an international review of existing schemes concluded that successful feed-in tariffs have, among other attributes:

- long-term guaranteed payments that adequately reflect generation costs and profit
- incentive levels specific to certain technologies
- incentive levels that are tailored to achieve specific policy goals.[6]

The European Photovoltaic Industry Association (EPIA), in their Position Paper proposes specific policy design features to deliver these objectives. This includes:

- long-term contracts (15-20 years), and
- guaranteed price that offers reasonable rates of return, easing access to financing sources due to clear payback periods.

Setting the tariff rate through determining an appropriate payback period

According to Access Economics a 10 year payback would require a gross feed-in tariff of 75c/KWh for year one of the scheme falling to 62c/KWh for units installed in year 20 of the scheme, assuming the cessation of the current national rebate scheme. Setting a payback period of 10 years will ensure a very strong growth in the uptake of solar PV systems and therefore a successful scheme. It will place Tasmania at the forefront of feed-in tariff / solar PV policy in Australia.

It will be important to ensure that a reasonable payback period be maintained for all average-sized systems installed under the scheme, not just for those households/businesses installing solar PV in the first year of the scheme. That is, a new entrant in the fourth year of the scheme, for example, should still have a guarantee of at least ten years access to the scheme (assuming payback is achieved over ten years), thereby ensuring full payback for their system.

[6] Klein, A., Held, A., Ragwitz, M., Resch, G. and Faber, T. (2007) *Evaluation of different feed-in design options: Best practice paper for the International Feed-in Cooperation.* Karlsruhe, Germany and Laxenburg, Austria: Fraunhofer Institut fuer Systemtechnik and Innovationsforschung and Vienna University of Technology Energy Economics Group.

Length of the scheme

Successful feed-in tariffs have *long term guaranteed payments* which create a stable investment climate. Under the German Renewable Energy Law, for example, renewable generators receive a fixed payment for 20 years.

The Stern Review found that: *"feed-in mechanisms achieve larger [renewable energy] deployment at lower costs. Central to this is the assurance of long term price guarantees…uncertainty discourages investment and increases the cost of capital as the risks associated with the uncertain rewards require greater rewards*".[7]

The design of the scheme should aim to ensure a smooth and sustained growth in the uptake of solar PV over a number of years. The main criteria for setting the scheme duration should be based on:

- maintaining an appropriate and consistent payback period for all new entrants regardless of whether they enter the scheme during Year 1 or Year 5.
- providing a certainty of this payback upon entry to the scheme for new entrants, again regardless of when they enter.

Approaching a more stable industry development mechanism like a gross feed-in tariff is essential to shift the solar PV industry from its current "boom and bust" cycle, resulting from recent repeated adjustment to Government policy. This has created significant difficulties in the solar PV industry.

In order to create market certainty, attract investment and deliver meaningful economic and environmental dividends:

- a feed-in tariff should guarantee payment to the system owner for a minimum of 10 years
- the programme should run for minimum of 10 years, meaning the feed-in tariff is paid out over 20 years (systems installed in year 10 will still earn a feed-in tariff for the following 10 years)

Tariffs available on a rolling ten year basis with a minimum ten years of new entry

The Clean Energy Council recommends a gross feed-in tariff should be made available to new entrants for a minimum period of ten years, with new entrants in scheme years through to Year 10 of the scheme all receiving ten years of support under the scheme regardless of their year of entry.

That is, the tariff would available on a rolling basis, with the tariff available to year 1 scheme entrants until year 11, Year 2 entrants until year 12 and so forth. The number of households and businesses receiving the tariff would ramp up until Year 10, after which participants who entered the scheme in the early years would gradually cease to receive the feed-in tariff. This approach would necessitate a minimum scheme length of twenty years, to ensure that new entrants to the scheme during year 10 also received a full ten years of feed-in tariffs.

The advantages of this approach are:

- it offers the full ten year financial benefit of the scheme to all new entrants over a minimum period of ten years, regardless of their entry year. This maximises the effectiveness of the scheme to leverage take-up of solar power systems.

[7] Stern, N Sir (2006) Stern Review: The Economics of Climate Change, available from www.sternreview.org.uk

- it offers significant certainty to industry, enabling a smooth and sustainable increase in demand for renewable energy systems and therefore industry capacity - helping industry meet increased demands in a timely and cost-effective manner, and
- it would also be the most cost-effective from the point of view of ensuring system owners receive a reasonable payback, but no more. After Year 11, scheme entrants from year 1 could receive the going (non-legislated) rate for solar PV buy-back at that point in time[8].

The only disadvantage to this approach is the requirement upon billing systems after Year 11, to manage some customers on at least two feed-in rates – one group of customers on the legislated feed-in rate and the other on whatever the default feed-in rate voluntarily offered by the retailer at that time. However, this would not occur for some time, maximising the ability of electricity retailers to plan systems to manage this.

Metering

The Clean Energy Council supports the use of gross metering as it better rewards investment in all the clean distributed peak energy generated and is more equitable than net metering.

Gross metering is more efficient

The installation of embedded generation brings the same benefits to the network whether the energy is exported to the grid or displaces energy imported. All energy generated on site displaces energy drawn from the main grid and so results in reduced losses, deferred network augmentations and increases in local energy security and reliability. Only paying for the energy actually exported to the grid undervalues the energy generated and used in house.

Gross metering is more equitable

Export (net) metering only values the *surplus* electricity generated by a distributed generation source. In the case of solar PV this discriminates against those who are at home during the day – such as families with young children, the elderly and their carers, those who run a business from home. These people have domestic electricity load (consumption) profiles which tend to be higher in the middle of the day when solar PV power production is at its peak. Owners of solar PV generation who tend not to be home during the day benefit from a net feed-in tariffs only because at times of peak supply they are consuming electricity somewhere else, such as an office. This accidental benefit should not be the basis for compensation.

Regardless of whether or not the solar PV owner is at home, a system of the same size and similar location will still produce the same amount of electricity, and thereby will still result in the same greenhouse abatement and demand reduction impact on the grid. The fact that a family exports less or no electricity to the grid during the day compared to the couple is of no consequence, as in the absence of the solar PV, the family would have created a much larger load on the grid.

Export metering, in a situation where a higher than retail tariff is paid to the owner for their exported electricity, essentially values the greenhouse abatement and demand reduction from a working couple's system more highly than demand reduction from a family or pensioner's solar PV system.

---

[8] Exactly what this rate will be will depend on the out come of Energy Market Reform among other factors.

The peak energy and power produced by the system is worth the same amount to society, regardless of whether it provides 2kW of demand reduction on-site or 2kW of capacity available to the grid.

Gross metering offers investment certainty – net metering does not

One of the essential criteria of a successful feed-in tariff is that it provides a stable investment climate and investment certainty – based on a clear payback period. Only gross production metering can provide this climate of investment certainty.

Under net metering, the rate of export to the grid of a particular system will depend on a variety of factors – how large the system is and what the energy consumption pattern of the household is – i.e. how much energy is consumed in the middle of the day?

By definition this means that there is not a standard rate of export to the grid which any purchaser can expect when they are considering buying a solar PV system, as there is a huge variability between systems. While studies conducted by the University of NSW established export rates in their study of a community in Western Sydney (based around system sizes of 1kW) and, based on these, modelled export rates according to system sizes and household loads. There was a significant range of rates expected according to varying parameters and in addition these rates could well be geographical and socio-economically dependent.[9] Furthermore, the South Australian Government's discussion paper *South Australia's Feed-in Mechanism for Residential Small Scale Solar Photovoltaic Installations* reported data from South Australian PV systems, which showed a large range of export rates of between 10-50 per cent across the systems.

Prior to purchase of the system it is highly unlikely that customers will have the necessary understanding of their daily electricity consumption profile necessary to accurately forecast their export rate. Such a scenario creates an extremely complex environment in which to make a purchase that takes into account the likely payback period of their system.

Net metering therefore provides no investment certainty to the customer in terms of a predicable payback period; it would act as a barrier to uptake and undermine the primary advantage of the feed-in tariff as a mechanism to drive significant industry growth – investment certainty.

Export metering disadvantages owners of smaller PV systems

Customers who cannot afford larger systems are also disproportionately discriminated against under an export metering system, as more of the production of their system is used up in the household meeting ongoing demand i.e. from fridges etc, with less solar energy exported. This means that PV owners receive less income from the energy production of their system although, as for the above example, the systems have benefited the grid to the same amount proportionate to their size and investment.

---

[9] Australian PVPS Consortium and the Centre for Environmental Markets, University of NSW (2007) *Submission to the Government of South Australia Discussion Paper on South Australia's Feed-in Mechanism for Residential Small-Scale Solar Photovoltaic Installations.*

Implications for metering practices

Some parties have held up current metering practices as an impediment to gross production metering. While it is true that currently systems are net metered, it is quite possible to change practice to gross production metering. In Victoria electricity retailer AGL is now requiring gross metering for all customers' systems with whom they enter into an electricity buy-back contract.

4. If we are seeking to encourage stimulate innovation in new renewable technologies, should the feed-in tariff apply only to solar photovoltaic cells?

5. Should the feed-in tariff apply equally to generation by small-scale wind, mini-hydro and biomass?

Distributed or embedded electricity generation delivers the same value whether it applies to solar PV or wind, mini-hydro and biomass. The Clean Energy Council believes that a feed-in tariff should apply to generation by solar PV, small-scale wind, mini-hydro and biomass and the rate should be set commensurate to the maturity of the technologies.

6. Should a feed-in tariff apply only to residential customers, or should small business customers with equivalent sized systems also be able to receive this subsidised rate?

7. What should be the upper limit for systems that are eligible for this subsidised rate?

Access of the commercial sector to a premium feed-in rate will be important to the success of a feed-in scheme

The Clean Energy Council believes that feed-in tariffs should apply to all sectors including residential customers, community buildings and the commercial and industrial sector. Not only would this maximise the benefits of the scheme in terms of demand management, but it would also open up demand in a significantly larger market place for all forms of distributed generation. The respective industries will be better placed to drive down costs by accessing greater economies of scale.

Feed-in schemes internationally have succeeded through ensuring the large scale uptake of distributed generation technologies like solar PV in the commercial market. These schemes have been designed to ensure that these systems have been seen as an attractive investment by the commercial sector.

Under net metering, not only would the revenue stream from these sources be unpredictable, on weekdays it would be highly unlikely that such a system would actually export any energy to the grid as it would be likely to be used entirely by the business at the point of generation. Ironically, the very reason why these systems are of significant value to the network would ensure low expected income to such a sector.

Eligibility by system size

The Clean Energy Council supports the inclusion of all embedded system sizes in all sectors with no cap on system size eligibility for the feed-in tariff.

The scheme should be established so that electricity retailers are not required to shoulder any financial burden resulting from the introduction of a gross tariff.

The Clean Energy Council would support the Tasmanian scheme adopting a model similar to that outlined by the Bill for the South Australian feed-in tariff – whereby it is a condition of a licence authorising the operation of a distribution network that the Distribution Network Service Providers (DNSP) allow a domestic customer to feed into the network electricity generated by a qualifying generator and that the DNSP will credit against a customers network charges, the amounts payable for the feed-in tariff. The electricity retailers are then required to pass this amount on as per usual billing process.

8. Should all householders with solar photovoltaic systems be eligible for a feed-in tariff at the same rate?

9. Should householders who received a rebate on the installation cost receive a lower feed-in tariff than householders who have not received this rebate?

The Clean Energy Council recommends a transition from rebates to a gross feed-in tariff but that the gross feed-in tariff must be high enough to compensate investors for the cessation of the rebate. The Council believes that all householders with solar PV systems should be eligible for a feed-in tariff at the same rate to enhance equity and long term certainty so that investment and growth can occur in a secure business environment.

In Tasmania, uptake figures indicate that the number householders who have received a rebate is relatively small and therefore cost to apply the feed-in tariff to existing systems would be inconsequential. To avoid utilities having more than one rate to administer and ease the administrative burden, the feed-in tariff should apply to those households that have already received the Federal Government rebate as well as new solar PV installers alike.

10. Is it fair that all customers pay an additional distribution charge to subsidise the feed-in tariff?

Feed-in tariffs are a useful method of compensating owners of distributed generation systems for benefits to the grid which would otherwise go unrecognised. Any surplus feed-in tariff rates reflect the cost of industry development, in the same way as other government programs funded by the community. Distributing this extra cost across the entire network makes its net impact marginal while providing the longer term benefits of more affordable distributed electricity supplies and as part of the cost of transforming the energy supply system in response to the threat of dangerous climate change.

Feed-in tariffs have been criticised for 'distorting competitive pricing'. However feed-in tariffs could be considered to be a bit like a reverse DUOS or TOUS. Not all prices in the electricity market are set via a competitive process. The distribution and transmission networks are managed by regulated monopolies.

11. Is a feed-in tariff an equitable, cost effective or efficient mechanism for achieving the desired objectives?

The Clean Energy Council supports the use of feed-in tariffs as a highly effective policy tool to accelerate development and deployment of distributed electricity generation technologies like solar PV. Considerable experience now exists on the use and benefits of feed-in tariffs as a policy mechanism for developing emission-free technologies and associated industries. One of the primary criticisms of feed-in tariffs, particularly in regard to their use to support solar PV, is that they do not supply the lowest cost abatement. A gross feed-in tariff is the most effective way of developing scale and technologies capable of driving down these costs over time. The process of clean energy transformation is a long term objective, with a range of possible outcomes and some technology uncertainty. Therefore a dynamic policy approach is required that looks past what is the most cost effective approach today irrespective of potential future developments.

Existing electricity markets do not adequately recognise the benefits of generation located at the point of demand and scaled to that demand. In this sense, feed-in tariffs can be a particularly useful mechanism by which to correct this market failure.

The key points elaborated in this submission are:

- Responding to climate change requires a major shift in the emissions intensity of our electricity to almost zero. Solar PV will be essential to this effort as it faces no energy resource limits and per unit of energy generated requires the lowest amount of land area compared to other renewable energy technologies.

- To achieve large scale deployment of solar PV in the most cost effective way will require significant cost reductions over time. These can be accelerated by technological development through increased scale now encouraging technology developments and novel approaches to installation. This dynamic approach will ensure that these types of distributed generation will have the best chance of driving down costs, thereby making a significant contribution to the reforms needed.

- The increased deployment required now to achieve these cost reductions will be driven by improving the payback period of solar PV - thereby attracting a wider market.

- Recognising the true value of solar PV in terms of network infrastructure and pricing it accordingly will significantly improve its payback period.

- Growing a strong solar PV industry is a significant economic opportunity for Australia.

As is outlined above in some detail, feed-in tariffs achieve multiple objectives through one policy mechanism – these include the provision of energy, greenhouse gas abatement, reduced network energy losses, industry development and therefore the benefits of learning-by-doing flowing through to cheaper technology in the long term and cheaper abatement. In addition solar PV has considerable benefits in electricity supply and transmission.

--