

14th October 2011

The Hon. Michael O'Brien MP
Minister for Energy and Resources
Level 22, 1 Spring Street
MELBOURNE VIC 3000



By email to: michael.o'brien@parliament.vic.gov.au

Dear Minister

Re: Victorian Transitional Feed-in Tariff (TFiT)

We write regarding the Victorian Government's Transitional Feed-in Tariff (TFiT) policy. The Alternative Technology Association (ATA) is concerned that the TFiT, as designed, will not achieve the Victorian Government's stated policy objective of providing system payback for most Victorian solar consumers of 10 years or less.

ATA is a national, not-for-profit organisation representing consumers in the renewable energy, energy efficiency and demand side energy markets. The organisation currently provides service to almost 6,000 members nationally (approximately 1,800 in Victoria) who are actively engaged with small and community scale renewable energy projects, energy efficiency and the national electricity market. As Australia's largest 'green publisher', ATA's flagship publications *Renew: Technology for a Sustainable Future* and *Sanctuary: Modern Green Homes* reach a readership of over 520,000 annually.

ATA provides an 'independent' consumer advice role, both to our members and to the Victorian public more broadly. As we are not funded by, and do not have direct links with industry or government, the ATA is a trusted source of advice for our membership and the general public in regards to the economics and environmental benefits of energy technologies. A key specialist area of the ATA's in this regard is financial modelling of the economics of solar investment.

We understand that the Government's TFiT policy has been introduced as a transitional arrangement as the legislative trigger approaches for a review of the Premium Feed-in Tariff (pFiT) policy. The TFiT proposes a minimum 25 cents/kWh feed-in tariff rate for five years.

ATA has constructed a robust, peer-reviewed financial model to estimate the range of feasible payback periods for solar investment in Victoria, taking into account all current incentives. **On the basis of this modelling, we are unable to support the Victorian Government's claim of a sub-ten year payback for most solar consumers under TFiT, and we will be advising Victorian consumers on this basis.** A straightforward solution to the question of achieving sub-ten year payback would be to extend the scheme for greater than five years.

The question of financial payback on technology is one based on assumptions, and in this regard, we have included the details of our modelling assumptions as an attachment to this letter. We would be pleased to discuss any aspect of our modelling with you. Should this be of interest, please contact me on 03 9631 5404 or at Ian.Porter@ata.org.au.

Yours sincerely,

Ian Porter
Chief Executive Officer

This document outlines ATA's modelling approach and the rationale behind the choice of parameters.

1. Detailed Modelling Approach

The ATA's model includes the following characteristics:

- Discounting of future revenue and costs;
- Indexation of future retail energy costs;
- Estimation of solar generation based on long-term averages of solar insolation from the Australian Bureau of Meteorology;
- De-rating to account for soiling and the degradation of solar panels over time;
- Incorporated two-part time-of-use (ToU) tariffs to estimate the value of displaced import of electricity (the majority of Victorian solar customers have been reassigned to ToU network tariffs on a two part, peak/off peak basis);
- Incorporated cost of inverter replacement after completion of its estimated lifetime.

The ATA payback period modelling approach is mature, having been developed and refined over the past four years.

2. Choice of Model Parameters

2.1 Capital Cost of Solar PV Systems

As one of our primary consultancy services, ATA has significant experience in the analysis of capital costs for solar PV, and have been engaged to undertake a number of independent tender reviews for bulk buy and single system projects for local councils, community groups and the private sector over the past three years. Through this experience, ATA has developed a comprehensive knowledge of the relationship between price, component quality and warranty.

Generally speaking, as price decreases, the quality of system components also decrease and the warranties provide less coverage. Warranties on the components and installation of solar PV systems can be summarised into the following categories:

- a) PV panel product or performance warranty, either:
 - provided by the panel manufacturer (generally not Australian-based) and covers manufacturing defects. Where a product is bought into Australia the importer takes on responsibility for the manufacturer's warranty, however this often does not amount to an effective protection for most consumers; and/or
 - provided by the panel manufacturer and is expressed as the guaranteed percentage output after a number of installed years (e.g. guaranteed 80% of rated output after 25 years);
- b) PV system installation warranty – provided by the system installer (an on-site warranty, typically between one and ten years);

- c) Inverter product warranty – provided by the inverter manufacturer and sometimes extended by the installer. Covers manufacturing defects.

ATA's experience is that there is commonly a trade off between the upfront cost of a PV system and the level of protection from inferior quality products and sub-standard installations that is afforded by the warranty bundle. For this reason, when performing modelling for solar payback, it is important not to choose the cheapest market price available as this will only consider inferior products and installation procedures, often with an unacceptably low level of consumer protection.

In ATA's experience, offers with acceptable quality and consumer protections are in the order of 20-25% higher than the lowest cost PV systems advertised.

In addition, choosing the lowest available market price does not take into account the availability of solar PV systems with that level of market price within regional areas (regional areas attracting a premium due to transport costs and proximity of installers / components).

Based on our most recent analysis, ATA estimates the current price for fully installed solar PV systems of a reasonable quality and warranty coverage is in the range of \$4.50 – \$5.00 per watt before any rebates or subsidies. This price is expected to continue to decrease in 2012 and beyond, with the major influence of installed system cost being manufacturing improvements and economies of scale internationally, and a reduction in global silicon prices.

To allow for the forecast decrease of the cost of solar PV panels in 2012, the ATA has used \$4.00 per watt to represent the future cost of a fully installed system. From this point, the multiplier reduction under the Federal *Solar Credits Scheme* should broadly keep pace with technology cost reductions, to maintain paybacks at a relatively consistent level, such that no additional discount is required for technology cost reductions for the purpose of this modelling exercise.

2.2 Feed-in Tariff Rate

The announced TFIT policy proposes a feed-in tariff rate of 25 cents/kWh, and as with the previous pFiT, electricity retailers are likely to provide a premium on top this rate to reflect a fair and reasonable value for the exported electricity. For the majority of Victorian electricity retailers since November 2009, this premium has been 6 cents/kWh. As such, ATA has used 31 cents/kWh for electricity generated that is exported to the grid for this model.

2.3 TFIT Scheme Life

As the TFIT scheme only offers consumers the certainty of a FiT for 5 years, ATA has assumed that after that period a customer will receive no compensation for exported energy. The value of reduced import of energy due to locally generated electricity is still taken into account.

2.4 STC Price

Due to the market power of electricity retailers under the RET scheme, the value of STCs traded under the SRES since January 2011 has hovered between the low \$20s and the low \$30s. This retailer market power is likely to continue into the short to medium term, where the majority of STCs are traded outside of the Clearing House, as PV installers and suppliers are unable to hold over surplus STCs until the clearing house cap is periodically corrected.

In the interests of being conservative, the ATA has used \$30 per STC for the modelling.

2.5 Retail Electricity Prices

The majority of Victorian solar customers have been reassigned to retail products that reflect underlying time-of-use (ToU) network tariffs on a two part basis (peak/off-peak). To reflect this, ATA has used 25 cent/kWh for peak and 10 cents/kWh for off-peak, to model the savings to solar customers through the use of solar electricity instead of grid electricity.

Also, retail electricity prices are set to increase over the coming years due to both network infrastructure upgrades and carbon pricing amongst other factors. Using economic modelling of retail electricity prices presented by the CSIRO report *Intelligent Grid*¹ as a guide, ATA has selected the middle scenario of retail electricity increases comprising 8% per year in the first 5 years, 6% per year in the following 5 years, and 3% per year thereafter.

2.6 Discount Rate

ATA has used a discount rate of 6% for the payback modelling, which represents the available interest that a consumer would expect to be paid in a standard bank saving account.

2.7 STC Multiplier Changes

The current STC multiplier value of 3 for the modelling since, as mentioned above, the multiplier reduction under the Federal Solar Credits Scheme should broadly keep pace with technology cost reductions.

2.8 Percentage of Generated Electricity Exported to Grid

For the three system sizes modelled (1.5kW, 2.0kW and 3.0 kW), ATA have chosen the values of 25%, 50% and 75% for the percentage of exported electricity to the grid. These values of export percentage represent the variation present in the community due to differing energy usage patterns and levels of energy efficiency.

3. Modelling Results

Using ATA's payback period model, and the tariff and length of the proposed TFIT policy, the payback periods available to consumers are outlined in **Table 1** below:

Table 1: Payback periods available for different system sizes under the proposed TFIT

System size	Payback period 25% export rate	Payback period 50% export rate	Payback period 75% export rate
1.5 kW	11 years	14 years	+20 years
2.0 kW	13 years	16 years	+20 years
3.0 kW	14 years	19 years	+20 years

As Table 1 shows, the minimum payback on a 1.5kW solar PV system estimated by the model is 11 years.

Clearly there is no modelled scenario with a payback within 10 years as announced in the government's media release of the 1st September 2011².

¹ Intelligent Grid, CSIRO, 2009. <http://www.csiro.au/files/files/ptyb.pdf>

² http://www.premier.vic.gov.au/images/stories/110901_OBrien_-_New_solar_incentive_to_replace_premium_feed-in_tariff.pdf

4. Conclusion

ATA considers that under no scenario can the proposed TFiT policy deliver a payback period to consumers of quality solar photovoltaic systems of less than 10 years.

ATA considers that at best, the proposed TFiT policy will result in payback periods of 11 years and potentially a payback period exceeding 20 years, depending on the size of the system installed and the percentage of generated electricity that is exported to the grid.