

8 August 2018

Solar Feed-in Tariff Review
GPO Box 536
Hobart 7001



By email to: solarfeedinreview@stategrowth.tas.gov.au

Submission to Solar Feed-in Tariff Review

Dear Review Team,

The [Alternative Technology Association](#) (ATA) welcomes the opportunity to participate in the Solar Feed-In Tariff Review.

Founded 38 years ago, the ATA is a national, not-for-profit organisation whose 6,700 members are (mostly residential) energy consumers. Around 500 of our members are Tasmanian.

Our extensive experience in energy policy and markets informs our advocacy and research which, amplified by our close collaboration with fellow members of the National Consumer Roundtable on Energy, makes the ATA an important voice for energy consumers Australia-wide.

ATA has a uniquely twofold perspective as a consumer advocate. With the continuing support of Energy Consumers Australia, we represent all small energy consumers in advocacy that seeks to improve energy affordability and reliability, and the structure and operation of the National Energy Market (NEM). Additionally, we speak with authority on behalf of the growing portion of the consumer base that has an interest in environmental sustainability, home energy technology, and demand-side participation.

Overview

The ATA broadly supports the current Tasmanian feed-in tariff (FiT) methodology. However, we believe it can be improved to better align with the Council of Australian Government's (COAG) *National feed-in tariff principles* by:

- Basing it on the true wholesale price rather than the regulated wholesale price; and
- Beginning the transition to a time-variant FiT – but maintaining the option of a flat FiT for those solar customers who it will benefit or for ease of understanding.

ATA also recommends that as part of the broader task of properly valuing distributed energy resources (DER):

- An approach be developed to value network services provided by DER and facilitate DER owners' participation in provision of network services; and
- Economic benefits of DG that cannot readily be incorporated into a FiT because they are not costs avoided by retailers – such as reduced use of the distribution and transmission networks – be formally quantified to inform policy decisions that consider cost impacts of DER.

The true value of solar

COAG's *National feed-in tariff principles* stipulate that "market participants should provide payment for exported electricity which reflects the value of that energy in the relevant electricity market and the relevant electricity network it feeds in to, taking into account the time of day during which energy is exported."¹ This provides clear guidance on how FiTs should be calculated, and the ATA is encouraged by the progressive adoption of these principles by state governments around Australia.

Currently, the Tasmanian FiT is based on the regulated wholesale electricity price (WEP) that retailer Aurora Energy pays. In its 2016 FiT determination, the Office of the Tasmanian Economic Regulator (OTTER) acknowledged that a FiT based on market wholesale prices would be more consistent with the COAG principles; but concluded that because retail prices were based on the WEP, this was the most appropriate basis for the FiT.² ATA disagrees with this conclusion, as in our view "the relevant energy market" (referred to by the COAG principles) is larger than the retail market.

While the WEP is indeed the wholesale price paid by Aurora Energy and thus by Tasmanian consumers through their retail energy bills, ultimately the entirety of the Tasmanian energy market is exposed to spot prices as both a buyer and a seller – and this exposure, particularly as a seller, is expected to increase in the future thanks to Tasmania's abundance of dispatchable renewable electricity. DER improves the value of this exposure, reducing the need for imports and increasing the volume of exports. The value of this DER fed into the grid by Tasmanian households is realised by Hydro Tasmania in the unregulated wholesale market, public revenue shared ultimately by all Tasmanians. Fully delivering the COAG FiT principles requires returning this value proportionately to households with DER via their FiT.

ATA recommends that the wholesale value component of FiTs be based on actual wholesale prices, rather than the regulated wholesale price, to reflect the true value of generation.

The difference between the avoided wholesale cost to Aurora and actual wholesale value should be contributed by Hydro Tasmania rather than paid by Aurora, because it is not an avoided retail cost.

Questions

1. What changes could be made to current Feed-in Tariff arrangements (for example, a different Feed-in Tariff rate structure) to provide incentive to install rooftop solar generation and appropriately reward consumers that have already installed rooftop solar generation?

As discussed above, *ATA recommends that the wholesale value component of FiTs be based on actual wholesale prices, rather than the regulated wholesale price, to reflect the true value of generation.*

Additionally, *ATA recommends that Tasmania commence a transition to time-variant FiTs.* We note that this would further align the Tasmanian FiT with the COAG FiT principles; and align with movements toward time-variant pricing in network and retail tariffs (such as time-of-use retail tariffs and demand-based network tariffs).

In its 2016 FiT determination, OTTER noted that while time-variant FiTs could theoretically encourage solar exports that supported the network during peak times, it was unlikely to be realised because of:

- a) Misalignment of solar generation with network peaks; and
- b) Low penetration of batteries, that would enable consumers to defer exports to peak times.³

Networks peaks vary widely dependent on at what level in the network peak demand is being measured (e.g. sub-station, transformer, feeder, etc) and what the characteristics are of any local part of a network (e.g. residential, commercial, industrial).

¹ Council of Australian Governments Meeting, Canberra, 7 December 2012, *National Principles for Feed-in Tariff Arrangements* (<https://policy.asiapacificenergy.org/sites/default/files/Revised%20National%20Principles%20on%20Feed%20in%20Tariffs%20-%20Mar%202013%20%282%29.doc>)

² OTTER, *Investigation to determine the Regulated Feed-in Tariff Rate for Standard Feed-in Tariff Customers (Final Report)*, May 2016

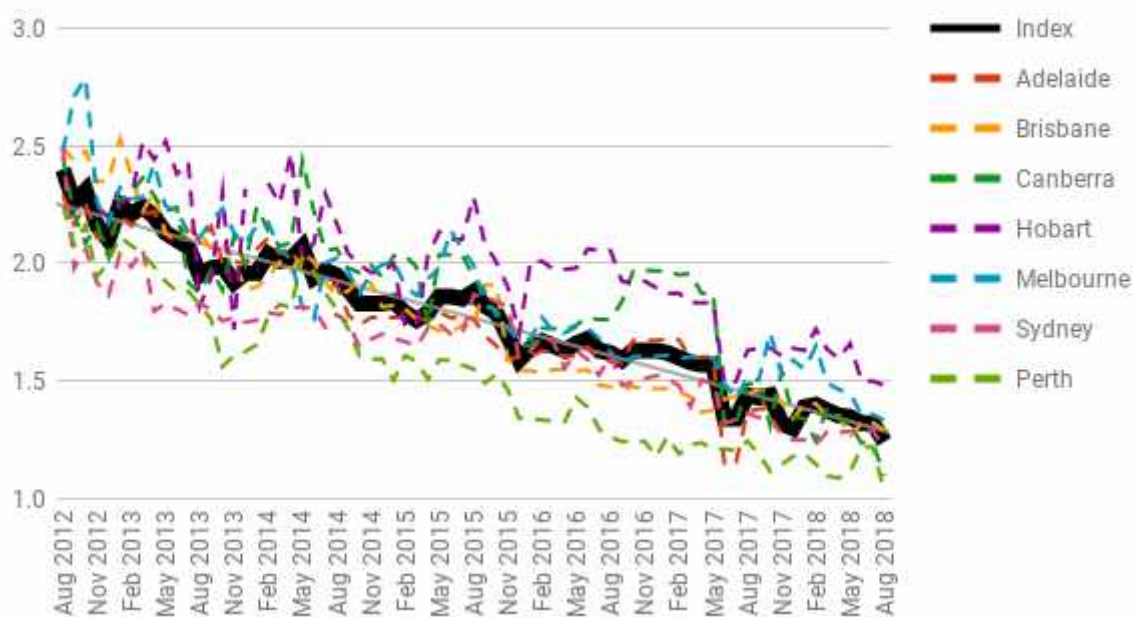
³ *ibid.*

ATA's experience is that in parts of the distribution network that have a mix of end use customers, particularly involving some commercial and industrial, network peaks can be relatively flat and occur during the middle part of the day. Solar generation definitely assists in this type of circumstance.

In addition, changes in technology performance and prices are improving the prospects for controlled export of DER.

The average price of solar PV systems has fallen by around 25 per cent in the last two years, making it much more feasible for Tasmanian households to install large systems that will export considerable amounts of surplus generation, even during times of low insolation.

Solar PV Price Index (\$/W - All cities, all sizes)



Source: <https://www.solarchoice.net.au/blog/solar-power-system-prices>

Battery storage is also declining in price, and while this is happening at a lower rate than PV prices, installations are becoming much more commonplace – industry analyst SunWiz reported that Australia-wide, 12 per cent of solar PV installations in 2017 included a battery,⁴ and the Central Victorian Greenhouse Alliance has reported that a similar proportion of PV installations they undertook in the last twelve months as part of the MASH Community Solar bulk-buy program included battery storage.⁵

That battery installations are happening at this rate despite typical payback times of more than ten years suggests that households are investing despite poor cost-effectiveness, and that opportunities to capitalise on battery exports are likely to be well-received.

Additionally, households without batteries still have considerable scope to respond to time-variant pricing. Household usage can be modified and appliances upgraded to maximise self-consumption during the middle of the day and reduce consumption during peak periods – especially if storage hot water systems are moved from a dedicated circuit and timed to coincide with maximum solar generation, or dedicated-circuit heating systems replaced with more efficient reverse cycle air conditioners on the primary circuit.

Time-variant FiTs will help to drive this behaviour and technology change.

⁴ Reported at <https://www.solarchoice.net.au/blog/over-20000-battery-storage-system-installed-in-aus-in-2017-sunwiz/>

⁵ Presentation to National Consumer Roundtable on Energy, 28 June 2018.

2. *Would those changes be likely to result in any other indirect or unintended impacts (beneficial or otherwise)?*

As discussed above, basing the FiT on the wholesale market value would require an amount greater than the retailer's avoided wholesale costs to be paid via the FiT. Requiring Aurora Energy to pay this amount would put a regressive additional cost on Tasmanian energy consumers. Instead, this additional amount should be contributed by Hydro Tasmania, ultimately borne by Tasmanian government revenue, which is more progressive than energy bills.

Time-variant FiTs are likely to encourage further investment in solar PV, batteries, and other home energy technology. This will not only support the renewable energy industry in Tasmania, bringing benefits of more employment and lower prices; it will also enable more consumer participation in the energy market via supply and demand response, potentially supporting power quality and network reliability.

3. *What contribution does rooftop solar generation make to Tasmania's energy security?*

DER increases energy security by making the grid more decentralised and providing alternative additional sources of energy during times of generation or network constraint. Growth in rooftop solar and household energy storage will continue to add materiality to this, as well as reduce reliance on the Bass Strait interconnector during times of low rainfall in Tasmania and subsequent reduction in hydro output. Additionally, the potential for DER to provide network services adds resilience to the energy supply.

4. *What are the social and environmental benefits and costs of rooftop solar generation? What is the value of these benefits and costs?*

Because Tasmania's generation mix has a low emissions intensity, the environmental benefits are largely experienced in Victoria where Tasmanian clean energy displaces coal and gas generation. However greater DER in Tasmania also reduces the likelihood that supplemental diesel generation will be needed, with environmental benefits.

There are many broader social benefits of rooftop solar including empowering consumers, job creation, increased energy literacy, and so on.⁶ These benefits flow either to the owners of DER, or to the broader community in general, and they are difficult to quantify – this makes them unsuitable or impractical to include their value in a FiT, but they must be considered as community benefits when assessing the cost–benefit value of policies designed to encourage or support household DER.

5. *Do the community benefits of incentivising further solar installations outweigh the costs of providing those incentives?*

Basing the FiT and other incentives as much as possible on the value of the energy exported ensures that the costs of providing them is offset by the benefits. Additional costs to deliver additional incentive to meet other social policy goals (such as job creation) need to be assessed against the value of those benefits as accurately as possible.

6. *Are there alternative mechanisms (other than changes to Feed-in Tariffs) that could be used to incentivise and reward the installation of rooftop solar generation?*

As noted in the consultation paper and the 2016 FiT determination, DER can potentially fulfil several network support roles. The Victorian ESC's inquiry into the network value of distributed generation⁷ was able to take advantage of Victoria's fleet of smart meters to analyse the benefits in detail. It found that rooftop solar (and presumable other DER) was already materially delivering such network services as:

- Deferring the need for network infrastructure upgrades; and
- Reducing expected unserved energy.

⁶ For example, see Essential Services Commission 2016, *The Energy Value of Distributed Generation, Distributed Generation Inquiry Stage 1 Final Report*, August 2016.

⁷ Essential Services Commission 2017, *The Network Value of Distributed Generation: Distributed Generation Inquiry Stage 2 Final Report*, February 2017.

Additionally, they found a range of other benefits that while not material in 2016, may well be in the future, especially with increased penetration of DER and newer 'smart' inverters that can be controlled remotely:

- Managing voltage regulation and power quality;
- Network support (such as reducing network congestion);
- Providing ancillary services; and
- Bushfire risk mitigation.

The ESC noted that the value of these benefits depended on the location, capacity, and controllability of the DER; the timing of its operation; and the stage in the lifecycle of relevant network assets. It also noted that the benefits were more contingent on the existence and generation of the DER, and less on its exports. It concluded that the value of the material benefits would be best remediated not through a FiT, but by developing a market for network services that was accessible by individual owners of DER, either directly or through a third party. The existence of such opportunities would provide an additional incentive for investment in DER of a type and in places where the network services value was material.

ATA recommends that Department of State Growth investigate the feasibility of establishing a network services market to encourage and gain additional value from private deployment of distributed energy resources.

7. Is there potential for rooftop solar systems, smart metering and battery storage systems to help manage or limit peak demand?

As discussed above, larger solar PV systems have the potential to help reduce peak demand if they are large enough to have significant generation during morning and evening peaks, or if they are paired with batteries so that generation from outside peak periods can be stored for use during the peak.

8. Are the opportunities to benefit from rooftop solar available equitably across the community?

Solar PV prices have come down sufficiently to make investment in solar very cost-effective for most households. Recent modelling we undertook for CHOICE⁸ found that a 5kW system in Hobart pays for itself in 5–7 years depending on the extent of weekday daytime energy use, despite the relatively low solar insolation and SRES subsidy. Solar PV now represents a practical way to reduce energy bills for vulnerable households – if only they could afford to install it. Government-backed programs to facilitate access to low-interest finance for low-income owner-occupiers, and to encourage landlords to install solar PV on rental properties, would help ensure that vulnerable Tasmanians don't get left behind in the renewable energy revolution.

Thank you for the opportunity to respond to the Solar Feed-in Tariff Review. If you wish to discuss anything raised in this submission further, please contact Dean Lombard, Senior Energy Analyst, at <mailto:dean@ata.org.au> or on (03) 9631 5418.

Yours sincerely



Dean Lombard
Senior Energy Analyst

⁸ <https://www.choice.com.au/home-improvement/energy-saving/solar/articles/solar-panel-payback-times>

About the Alternative Technology Association

For 38 years, the [Alternative Technology Association](#) (ATA) has been the leading organisation providing practical, independent advice on sustainable living. Established in 1980, the ATA is a not-for-profit organisation whose 6,700 members are mostly residential energy consumers with an interest in sustainable energy and resource use.

With the support of Energy Consumers Australia, ATA is also a prominent advocate for all Australian energy consumers. As a member of the National Energy Consumer Roundtable, ATA works closely with other consumer advocacy organisations, providing expertise and experience in energy policy and markets. We also conduct independent research into sustainable technologies and practices.

ATA's reach extends to a wide audience, of consumers and other stakeholders, through our magazines [ReNew: technology for a sustainable future](#) and [Sanctuary: modern green homes](#), as well as online resources, events, talks, reports and "good news" media articles.