Methodology for determining a fair solar price in Queensland

A response to the QPC issues paper from the advocacy project on the fair value of distributed generation

30 November 2015

Background to this response

Research review and advocacy on the fair value of distributed generation is a project funded by Energy Consumers Australia. It's aim is to summarise existing research and undertake advocacy on setting a fair feed-in tariff for solar customers in Australia, with particular reference to review processes currently underway in Queensland, Victoria and Tasmania.

The project includes involvement from:

- Solar Citizens
- Alternative Technology Association
- Australian Solar Council
- Total Environment Centre
- Clean Energy Council
- Tasmanian Renewable Energy Alliance

Because the project was only funded recently we have not yet had time to summarise existing research or prepare a full response to the QPC issues paper.

This response is an interim submission highlighting the most important issues we believe need to be addressed by the QPC inquiry. We will produce a fuller response when we are able, and will produce a response to the proposed QPC draft report anticipated in late February.

Due to time constraints, this response has been approved by the project Reference Group but has not been formally endorsed by all the participating organisations.

Responses to specific questions in the Issues Paper

2.1 Is there evidence of significant and enduring market failure in the solar export market in Queensland?

Yes.

The current methodology used in Queensland, as summarised on p.6 of the QPC issues paper, is that "*the fair and reasonable value of PV exports should be the direct financial benefit that electricity retailers receive when they on-sell exported energy from their PV customers.*" A similarly limited basis for assessing the value of exported solar energy is used in other jurisdictions in Australia.

Setting the solar FiT only in terms of the benefit to retailers fails to meet the National Electricity Objective[1] to "promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers …" because a number of the benefits of distributed generation are not rewarded under the current operation of the electricity market.

There are a range of economic benefits of distributed solar. These include:

- the wholesale value of the energy fed back into the grid
- avoided losses in the transmission and distribution networks
- avoided costs paid by retailers for participation in the National Electricity Market (NEM) consisting of participation fees and ancillary services charges
- the fact that distributed solar energy does not require use of transmission networks
- the reduced use of distribution networks
- the downward pressure on wholesale electricity prices as a result of the merit order effect
- the reduced need for investment in transmission and distribution infrastructure because load growth is reduced by distributed generation especially when solar is exported to the grid during peak demand periods where these are coincident with localised network peaks.

Currently only the first three of these are recognised in the Queensland FiT set by the QCA because they are the only benefits that directly reduce costs to retailers. However the additional benefits should flow through to consumers in the longer term and should be reflected in the feed-in tariff paid to solar owners or through other mechanisms which encourage the growth of distributed generation.

2.3 Do solar PV exports produce positive environmental and social impacts that are currently not paid for through existing programs and rebates?

Yes, distributed generation from solar PV has a wide range of environmental and social benefits that are not reflected through feed-in tariffs or other mechanism. It is the intention of our project to summarise these benefits and existing research on them.

At least the following additional benefits should be assessed in terms of both the quantification of the benefits and whether a regulated feed-in tariff is the most effective way to recognise these benefits:

- the value of the reduction in CO_2 emissions that result from solar PV displacing fossil fuel based electricity
- the health benefits from reduced use of coal fired electricity

[1] http://www.aemo.com.au/About-the-Industry/Legislation/National-Electricity-Law

- reduced water use
- the employment created by a growing solar industry
- the industry development potential from taking a leading role in deployment of new technology, particularly in the emerging area of distributed storage in conjunction with distributed generation.

As an example, the study *The Hidden Costs of Electricity: Externalities of Power Generation in Australia*[2] estimates the aggregated national health burden arising from emissions from coal fired power stations at around $A2.6 billion per annum (ATSE 2009, p.ii) and attempts to translate these externalities into $/MWh of electricity generated.

An additional benefit to society is that installation of solar PV gives homeowner a strong interest and motivation to better understand and manage their energy consumption. This increased energy literacy will be an important driver of the uptake of new technologies such as local storage, demand management and integration of electric vehicle charging which ultimately can lead to a more flexible and economical electricity system.

2.5 Would a regulated solar feed-in tariff be an effective and efficient tool to address environmental externalities?

In the absence of a carbon price, we believe a regulated feed-in tariff is an effective way to recognise these environmental externalities.

2.9 How should fairness be defined?

Household and business investment in solar PV involves significant capital outlay based in part on assumptions about future financial benefits from reduced electricity purchases.

The solar industry in Australia has been characterised by repeated boom and bust cycles caused by sudden changes in government policy. These cycles make it difficult for the solar sales and installation industries to maintain a skilled workforce delivering a quality product.

We believe the definition of fairness used by the QPC should include:

- fair treatment of people who have already invested in solar PV
- as much certainty as possible for people and businesses making future investment decisions
- avoiding sudden changes in policy which undermine the growth of a solar industry that is able to deliver a quality product to the public.

3.4 How should the price be structured and paid? Should feed-in tariffs account for variations in value due to location and time?

Variation by location

It is clear that the value of exported distributed energy varies quite significantly by location. This is a result of several factors:

- transmission and distribution losses will be higher in the periphery of the networks
- the avoided cost of network upgrades depends on the location of network constraints, local load growth and the extent to which distributed generation reliably reduces network peaks.

Varying a regulated FiT is probably not the most efficient way of recognising the additional benefits of distributed generation in specific locations. However these benefits are real and can be

[2] http://www.atse.org.au/content/publications/reports/energy/hidden-costs-electricity.aspx

substantial. It would be valuable for the QPC to acknowledge these benefits and identify mechanisms that could reward distributed generation in these situations.[3]

Variation by time

The value of exported distributed energy also varies quite significantly by time of day and seasonally. If there was a price signal for solar owners to export at times when the exports were of most benefit to the network there would be some ability for solar owners to respond to these signals. They could do this by shifting the time of their household consumption to free up energy for export, and by orienting their panels to the east and west rather than just to the north.

However the major benefits of varying time of export will occur once households and businesses invest in local storage. Take up of storage is likely to grow dramatically in the next few year driven by both declining costs and the end of legacy FiTs.

We believe the QPC should acknowledge the benefits of rewarding solar export based on time of day and begin the work of quantifying these benefits. This will inform future policy consideration of the most efficient mechanisms for rewarding these exports. Possible mechanisms include a time-based FiT, network payments for distributed energy at times of critical local peaks and aggregated customer exports being bid into the NEM.

3.6 & 3.7 When and how should the feed-in tariff be reviewed or updated?

We congratulate the QPC on recognising the complex trade-offs involved in deciding how and how often to review feed-in tariffs. As outlined above we urge the QPC to develop mechanisms that allow flexibility to respond to new technologies and changed circumstances while offering some level of predictability to both solar owners and the supply industry.

Mechanisms that should be considered include:

- providing legacy arrangements that do not disadvantage solar owners in the first five years after they make an investment in solar PV
- introducing changes incrementally that allow the industry to plan for growth
- foreshadowing future possible arrangements such as payments based on time of export to allow suppliers to develop appropriate products.

Given the likely growth in new technologies involving local storage we believe the QPC should set out possible future policy responses to this technology and should conduct a further review of FiTs in two years' time.

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[3] See for example the current AEMC rule change proposal to introduce a local generation network credit. http://www.aemc.gov.au/Rule-Changes/Local-Generation-Network-Credits An issues paper is due to be released this month.