

Submission to IPART on Solar Feed-in Tariffs 2018/19

April 2018



CENTRAL NSW
COUNCILS



Centroc's Mission is to be recognised as the lead organisation advocating on agreed regional positions and priorities for Central NSW whilst providing a forum for facilitating regional co-operation and sharing of knowledge, expertise and resources; effectively nurturing sustainable investment and infrastructure development.

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16 April 2018

Reference jb:kb 180416
Enquiries: Ms J Bennett: 0428 690 935

IPART NSW
Level 15, 2-24 Rawson Place
Sydney NSW 2000

Dear Sir/Madam,

Re: Solar Feed-in Tariffs 2018/19

Central NSW Councils (Centroc) represents over 200,000 people covering an area of more than 50, 000 sq kms comprising the Local Government Areas of Bathurst, Blayney, Cabonne, Cowra, Forbes, Hilltops, Lachlan, Lithgow, Oberon, Orange, Parkes, Upper Lachlan, Weddin, and Central Tablelands Water.

It is about the same size as Tasmania with half the population and a similar GDP.

Centroc's vision is to be recognised as vital to the sustainable future of NSW and Australia.

Its mission is to be recognised as the lead organisation advocating on agreed regional positions and priorities for Central NSW whilst providing a forum for facilitating regional cooperation and sharing of knowledge, expertise and resources.

Centroc has two core objectives:

1. Regional Sustainability - Encourage and nurture suitable investment and infrastructure development throughout the region and support members in their action to seek from Governments financial assistance, legislative and/or policy changes and additional resources required by the Region.
2. Regional Cooperation and Resource Sharing – Contribute to measurable improvement in the operational efficiency and effectiveness of Member Councils through facilitation of the sharing of knowledge, expertise and resources and, where appropriate, the aggregation of demand and buying power.

The Centroc Board is made up of the 28 Mayors and General Managers of its member Councils who determine priority for the region. These priorities are then progressed via sponsoring Councils. For more advice on Centroc programming and priorities, please go to our website <http://www.centroc.com.au/>

Centroc writes this submission to represent the interests of its members. Many Centroc member councils have investments or are considering investments in rooftop solar, and Feed-in-Tariffs (FiTs) are part of the assessment of future savings that can be expected based on rooftop solar investments.

We believe the annual FiT price recommendation process by IPART is important to sending a benchmark signal to retailers, guiding what FiT the retailers should offer its customers for exported solar. We support the principal that exported solar should receive the market value by way of FiTs. Our feedback and recommendations in response to the questions nominated by IPART speak to improvements in the

valuation methodology of calculating the value of solar and also suggested improvements the current annual IPART process.

Thank you for the opportunity to provide feedback.

We provide a response below to each of the 7 issues that IPART has requested comment on in the Solar Feed-in Tariffs Issues Paper.

1. Do you agree with our overall approach to setting a benchmark range for solar feed-in tariffs? If not, why not?

We provide feedback to this question with regards to 2 elements of the current approach:

1. Current approach is to annually provide a solar feed-in-tariff price range to retailers in NSW for next financial year; and
2. Current approach uses expected wholesale value of the solar exported from households to the grid.

The current approach is:

- IPART release a draft recommended Feed-in-Tariff range to retailers in around March each year for comment and feedback
- IPART release their recommendation, including a benchmark range of FiTs in June each year
- The new FiTs apply from 1 July that year until 30 June the following year.

We see a number of the challenges to the current approach.

Firstly, we believe there are advantages to bring the whole process forward 6 months. Currently there is little time from the confirmation of the recommended range, to the announcement of new rates by retailers for households. This is even worse for businesses who may be tendering their electricity for the next financial year in April prior. If a household or business is considering a rooftop solar investment in March or April for example, they have no way of knowing the potential bill savings they will achieve even in 2 months' time. The late process by IPART restricts the ability for households and businesses to get transparent pricing from their retailers to set budgets and make decisions.

Secondly, Investing in any power generation is a long term investment, with assets likely to last 20 years or more. If you are able to use that generation for 20 years, it is cheap. But households and businesses have to weigh up many risks when they invest in rooftop solar, such as equipment failure over time, whether they will still be at the property in the future or if there will be changes to the building.

Households and businesses look very deeply into the economics of solar, overall savings and by which time it is likely to pay off. Electricity demand by households and businesses changes each year, week, day and even every minute. For even the best designed system, it is likely that sometimes there will be solar production in excess of needs, particularly if a solar system is designed to attempt to meet loads on less sunny wintery days.

To accurately assess the benefits of rooftop solar, it is important to look at least 3 years, if not 5 or 10 years, to assess likely savings the solar will produce. The current system of 1 year FiT pricing ranges, announced just before commencement, makes it impossible to assess the likely savings from solar, and investment in solar more challenging.

In comparison, large scale solar generation plants and investors can secure Power Purchase Agreements for sale of their electricity at long term fixed rates. This is not possible for rooftop solar, particularly for excess solar fed into the grid. The current arrangement creates an uncertain future for solar investors, hindering investment in rooftop solar.

Thirdly, the current assessment attempts to utilise a market price of excess solar, with reference to the wholesale energy price. In principal, the utilisation of a market price is fair as it responds to the value of solar supplied to the grid by rooftop solar systems. We believe this market price should not be limited only to the upcoming year.

The National Electricity Market and NSW grid is undergoing a transformation, with aged coal fired power stations progressively closing and being replaced by wind, solar and other generation and storage technologies.

In particular, NSW already imports over 10% of its electricity net from other states. It actually imports more, but also exports at times. The South Australian blackout showed that reliance on interstate electricity through transmission may not see a reliable and resilient energy system. Interstate connections are appropriate and efficient for balancing supply and demand, but should not be over relied upon as net supply across the year.

With a current system seeing large imports from other states, and the scheduled closure of Liddell Power Station in 2022, the supply and demand balance in NSW's electricity system is tight. Solar has been proven to generate when demand is high, during daytime and on hot days, particularly in NSW with its high air conditioning correlation.

We believe that household and solar investors should be given more medium term certainty for FiTs. This could be done by providing ranges for the next 3-5 years, and guidance for subsequent years. We also believe that the medium term assessment should not just be based on historical or futures prices, but allow for risks of higher prices. For example, if Liddell Power Station closed early, or if another coal power station failed for a period or closed without fair notice to the market (like Hazelwood and Northern Power Stations), where would NSW wholesale electricity prices go? By factoring in the potential for high prices, and providing a market based signal to solar investors, NSW can prepare and avoid future squeezes on supply and demand and high prices to consumers.

We recommend:

1. The IPART FiT pricing process is brought 6 months earlier to give retailers and rooftop solar investors more notice;
2. FiT pricing is provided for a period of more than 1 year, say 3-5 years, with guidance for subsequent years; and
3. FiT pricing should not just be based on wholesale or futures pricing, but allow for the risk of higher prices should investment in new generation not occur.

2. What is the best way of setting a benchmark that reflects the average value of solar exports across a day? How should a benchmark range be set to reflect the value of solar exports at different times across the day?

When customers pay for electricity, it includes several components:

1. Retail - Wholesale energy, forward purchasing, firming of pricing, insurance from high price events
2. Network - Cost of transmission and distribution
3. Other - Environmental charges, AEMO charges and others (eg. solar bonus scheme, often charged via network charges)

As per our answer to Question 1, we believe the best way of benchmarking the Retail value of the electricity is a high scenario of futures prices.

In addition, we understand that on top of futures prices, IPART currently includes avoided transmission and distribution losses. We note that Victorian FiT calculations also include: avoided AEMO market and ancillary fees, loss adjustments and value of avoided social cost of carbon. The table below shows the current NSW IPART Inclusions, Victorian ESC inclusions and our recommended inclusions:

Values of solar	NSW IPART Current	Victorian ESC	Recommended
Wholesale Prices	✓	✓	✓
Solar Multiplier/ Participation Factor	✓	✓	✓
Potential higher price scenario			✓
Transmission and Distribution Losses	✓	✓	✓
Transmission Charges			✓
Distribution Charges			✓
NEM Fees & Charges	✓	✓	✓
Loss Adjustments		✓	✓
Carbon Abatement			
Social Cost of Carbon		✓	✓

We don't recommend the inclusion of carbon abatement value as this is already included via the payment of STCs and LGCs for solar.

As solar generated electricity is used locally, and generally generates during high demand, reducing the number and severity of peak demand events, we recommend at least transmission charges avoidance should be included in FiT price setting, along with distribution charge reduction. Transmission avoidance charges are available to registered larger scale distributed generators, so should be made available to rooftop solar systems via the FiT price setting.

With regards to time of generation and time of export to the grid of rooftop solar, we are encouraged by the Victorian ESC's variable FiT option, providing higher value FiTs to exported electricity in late afternoon. It is understood with greater solar penetration in the future, and high demand events occurring from early afternoon through to late afternoon, solar generation in the late afternoon should be encouraged. While west oriented solar panels produce approximately 15% less generation over the year, late afternoon generation may be more valuable in the future.

3. Do you agree with our existing approach to forecast average wholesale electricity spot prices using a 40-day average of ASX baseload electricity contract prices and assuming a contract premium of 5%? If not, please provide evidence to support your views.

As per our responses to questions 1 and 2, while this is a good approach to arriving at the wholesale value of exported solar in the next year, it does not take into account the value of solar providing more energy supply to the NSW energy system, improving medium to long term price to customers, reliability and resilience. Particularly as we move into more uncertain times, we are reliant on interstate supply and the black coal power stations that provide the majority of NSW electricity are nearing the end of their life.

4. Do you agree with our preliminary view that historical data provides the best source of information on future patterns of wholesale electricity prices?

In NSW, there is currently 635 MW and 983 MW of committed solar and wind farms respectively. This will see 4.5% additional (of total NSW generation) renewable supply to the NSW grid when completed. There is also continuing investment in rooftop solar of approximately 30MW per month, and the committed withdrawal of 2,000 MW of black coal occurring all within the next 5 years.

Many complex models have been produced to attempt to forecast future prices, but have been incorrect due to market changes. We recommend that IPART takes less of a scientific approach to price setting, as it is not possible to accurately forecast future scenarios and prices. NSW and Australia has little experience in the outcomes of a higher renewable energy system and withdrawal of large coal power stations. The limited experience we have in South Australia and Victoria, is much higher prices.

We recommend that IPART take a more risk management approach to price setting. Managing the risks of what:

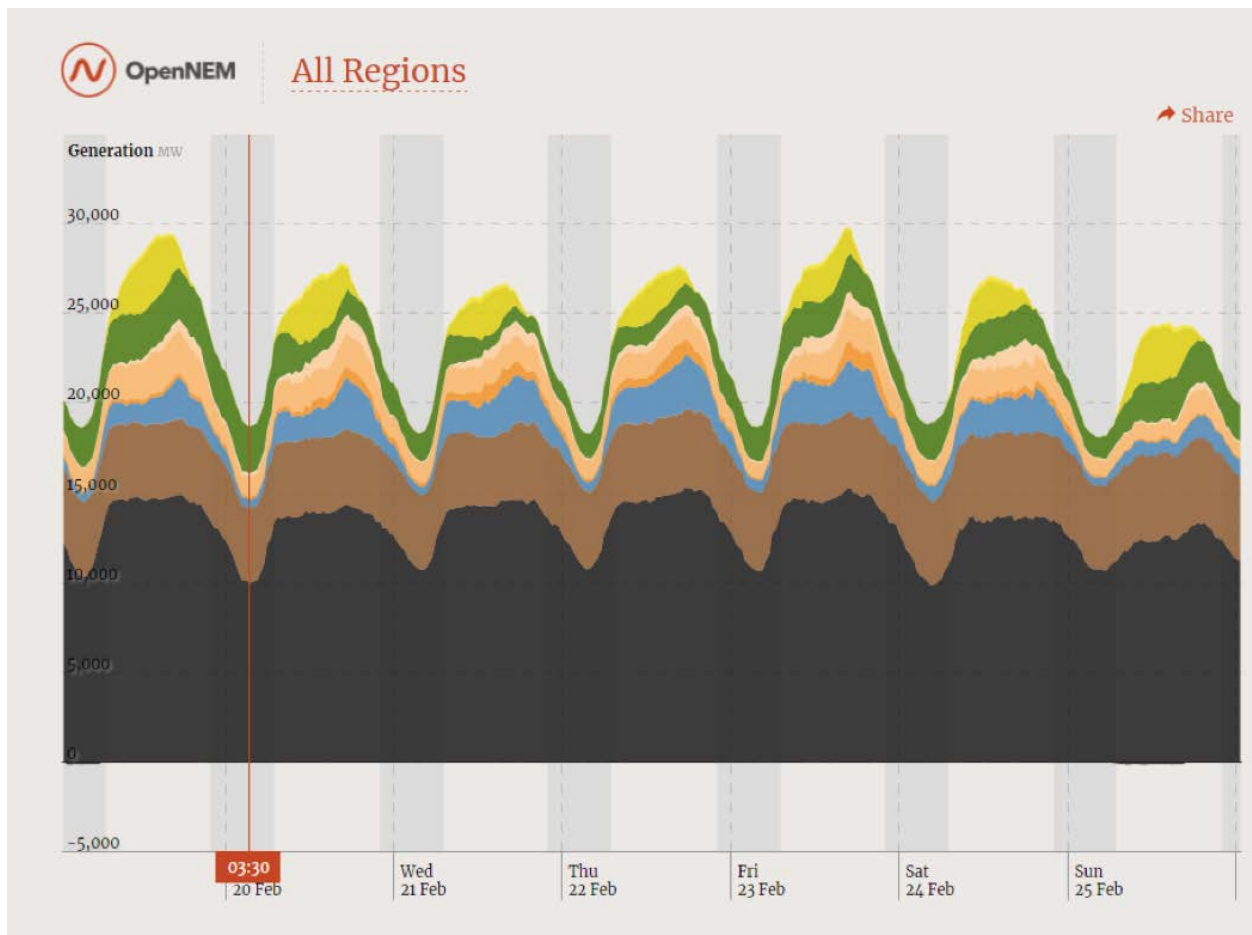
- may happen if investment in new energy supply does not occur; or
- happens if there are large power station withdrawals from the market with little notice, and time for the market to react; or
- may happen if a coal power station fails and takes time to be fixed.

To this extent, as the electricity wholesale market is changing so rapidly, historical data is not a good indicator of future scenarios and pricing.

5. How much historical data should we account for when estimating solar multipliers, and which point in the solar multiplier distribution should we use?

In IPART's Issues Paper, it notes that peak demand has moved from 2-4pm to after 4pm. As it is not clarified, it could be assumed this comment applies to the whole year. We believe that recent data does not necessarily reflect this. When including behind-the-meter solar production as generation (not just reduced demand), peak demand continues to occur at 2-4 pm. When net demand is analysed only, it does not include behind-the-meter solar generation, and peak demand appears to occur after 4pm. This is not necessarily true across the whole year, and peak demand may occur later in winter. But it is not true that peak demand has shifted later for the whole year.

The graph below shows that for the NEM, on every day in the week of 19 February to 25 February 2018, peak demand occurred in the early afternoon (or earlier), and only a lower peak demand net of behind-the-meter solar occurred in the later afternoon. Each day rooftop solar was reducing and also delaying net peak demand.



Source: OpenNEM.org.au

The solar multiplier is the equivalent of the participation factor of excess solar. The participation factor is calculated by dividing the Technology Weighted Pool Price by the Volume Weighted Pool Price for a period (generally 12 months).

The participation factor of solar is currently above 1.0, seeing an additional value for solar via the solar multiplier when calculating the FIT using IPART’s method.

Participation factor for solar can be influenced negatively by the:

1. Amount of generation during lower demand (and therefore low price) times; and the
2. Amount of generation during high generation/supply times.

Wind power often runs at participation factors in SA and Victoria below 1.0, for both of the above reasons, it generates at low demand times and also wind farms have high coincidence with other wind farms, with many producing at high levels at the same time.

For solar, use of the solar multiplier may unfairly reduce the value of the FIT calculation, not because it generates when it is not needed, but as more solar may become available over time. The increase in solar generation will see its participation factor and solar multiplier decrease, despite being very valuable to the grid.

The 2017 study by Energy Synapse for Solar Citizens found that by generating during high demand times, rooftop solar reduced the severity and duration of the high price events and saved NSW customers an estimated \$2.2 to \$3.3 billion.

Moreover, spread across a wide geography, solar is very reliable. It generates daily. It is well complemented by other existing and new generation and storage technologies such as existing hydro and pumped hydro, battery storage and flexible black coal and gas that can cycle daily in a predictable way.

When initially developing the national electricity grid, measures were made to move demand to the evening (such as domestic hot water production) to create base load so brown coal generators could maintain continuous generation. Basslink was also developed to provide base load for brown coal generators in the evening from Tasmania, and to capitalise on Tasmanian Hydro. Brown Coal generation was not punished, despite over supplying at night times. Solar should not be discouraged, particularly as it generates during high demand times, and reduces duration and scope of high price events. Rather than discouraging solar as daytime prices reduce due to coincidence of high solar generation, investment in more solar should be encouraged to maintain the price reduction effects of solar on wholesale prices.

By not properly and fairly valuing a particular product, market inefficiencies can be created, restrict investment in the correct technologies and generation types, leading to poor market outcomes and higher prices.

6. What is the minimum number of years that we should consider using to incorporate the Essential and Endeavour solar export data?

By concentrating on Ausgrid data, there is the risk of high coincidence of generation when it is sunny or cloudy in Sydney and the Hunter. Data from more geographically spread solar such as rooftop solar in the Essential Energy region may show a greater coincidence of generation with higher pricing, and therefore is important to fair valuing of solar.

We believe that 1 years' worth of data from Essential and Endeavour is sufficient.

7. Are there any other improvements we can make to our approach for calculating the wholesale market value of solar exports?

As per our earlier responses, we believe that the value of the solar to the NSW energy system and to NSW energy consumers is beyond the wholesale market value of solar exports. Solar produces electricity at times of high demand, reducing the duration and severity of peak price events. At this point, solar does not generate to the extent of oversupply to the market. Therefore, solar should not be punished for its depressive effects on electricity pricing. This value of solar can be calculated by values other than wholesale, as listed in the table in response to Question 2 above. And also, IPART can take a future view of the risk of lack of investment in new generation, such as rooftop solar, in preparation for retiring coal plants.

Victoria regulates FiTs and they are compulsory for all retailers. This is preferable, as it provides more simplicity to solar owners and investors, improves the ability for solar owners to switch retailers and provides more investment certainty in rooftop solar.

While it is true that some retailers may have separate offers with high FiTs that come with higher consumption rates, resulting in the risk of net higher electricity costs to customers, this is rare. Centroc councils and other businesses are able to assess the most suitable retailer offer as part of their tender processes, and this is a low risk. The existing of some separate FiT offers by retailers should not dampen the importance of IPART FiT annual recommendations and the current process.

Lower FiT recommendations by IPART may also have unintended consequences. It may signal to households and businesses that solar production is less valuable, and that more reductions will occur

over time and in the future. This may see less investment in solar, and more investment in, for instance, batteries. NSW imports 10% of its electricity from interstate, only has approximately 4% solar supply currently, and has GWs of hydro and other flexible generation. In summer NSW generation often goes from 6GW overnight to 12GW in the afternoon, showing that flexibility. NSW does not need additional capacity, flexibility or storage. It needs energy, via electricity generation for the short and medium term. A lower valuation, and a trend toward lower valuations over time of energy production by rooftop solar, will send the incorrect signal to the market, resulting in inefficient investment and higher prices to NSW customers.

Conclusion

NSW households and businesses are unable to enter into contracts for their exported solar beyond the current retailing year, to gain certainty for their investments. They generally do not also have market expertise to understand risk and future price movements. This puts residential and business investments in rooftop solar at a disadvantage to utilities and large scale solar independent power producers who can enter into long term contracts for their production and have capability and expertise in energy markets. FiTs for exported solar have the potential to even the playing field for rooftop solar owners and investors.

IPART FiT recommendations are not compulsory but are important and send an important market signal. Suggestions for a fairer approach are outlined above and more medium term IPART guidance on FiT to retailers will level the playing field for rooftop solar investors.

Centroc thanks you for the opportunity to provide a submission on this issue.

Yours sincerely,

A solid black rectangular box used to redact the signature of Ms Jenny Bennett.

Ms Jenny Bennett
Executive Officer
Central NSW Councils (Centroc)