

20 September 2012

Mr EJ Hall  
Chief Executive  
Queensland Competition Authority  
GPO Box 2257  
Brisbane Qld 4001



Dear Mr Hall,

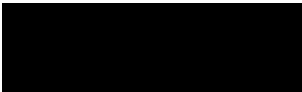
**Energex Response – Estimating a Fair and Reasonable Solar Feed-in Tariff for Queensland**

Energex welcomes the opportunity to provide comments on the Authority's Issues Paper - *Estimating a Fair and Reasonable Solar Feed-in Tariff for Queensland*.

The growth in the adoption of solar PV in recent years represents the beginning of a transition in the way customers source and use electricity. Energex believes it is important that regulatory and market arrangements keep pace with these changes to ensure that these technologies are integrated into the market in a rational and efficient way. The structure and rate of any feed-in tariff paid for electricity exported to the grid is a key component within these arrangements as is the equitable allocation of network use of system charges.

Please find attached Energex's response to the Issues Paper. Should you have any questions in relation to this matter please contact myself or Louise Dwyer, Group Manager Regulatory Affairs on (07) 3664 4047.

Yours sincerely

  
Kevin Kehl  
Executive General Manager  
Strategy and Regulation

*Attachment*

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**ENERGEX Limited**  


**Submission Paper**

# **Estimating a Fair and Reasonable Solar Feed-in Tariff for Queensland**

**QCA Issues Paper**

**September 2012**



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# 1 Introduction

Energex welcomes the opportunity provided by the Queensland Competition Authority (QCA) to submit comments on the Issues Paper *Estimating a Fair and Reasonable Solar Feed-in Tariff for Queensland*.

Energex supports the position that owners of solar PV and potentially other distributed energy resources should receive a fair and reasonable market based value for electricity exported to the Queensland electricity grid.

## 1.1 Key Points

- Energex supports tariff arrangements that provide customers with appropriate price signals to make informed and efficient investment decisions and that do not impose uncompensated costs on other parties.
- Energex considers that a retailer funded Feed-in tariff model based on avoided costs is the most appropriate method to compensate solar PV owners for electricity exported to the grid. There are clear benefits to retailers but significant uncertainty regarding the net benefits/costs to other parts of the supply chain. Where sufficient retail competition exists Energex supports a light handed regulatory approach to the implementation and operation of the feed-in tariff.
- In general the export of electricity from small scale residential solar PV to the network is unlikely to provide any significant benefits in terms of deferred network investment. However, there is the potential for increased investment costs in order to accommodate exported electricity arising from incentive arrangements, while maintaining service delivery standards.
- While, some improvement in network losses could be expected from the export of embedded generation, Energex is not convinced that there is sufficient benefit in capturing this value in the feed-in tariff to justify the cost of accurately quantifying this value.
- Energex considers that the current net metering approach is preferable to a change to gross metering for the ongoing feed-in tariff provided PV customers equitably contribute to the costs of network capacity. Net metering should result in lower costs to the solar PV owner and lower administration and metering costs to network businesses.
- As the market for personal energy management technologies evolves it is important that market arrangements, including any methodology for valuing electricity exported to the grid from end use locations, recognise the potential for



differing value across the supply chain at different times of the day. This may require a different approach to the estimation, structure and regulation of feed-in tariff arrangements.

- Energex agrees that a more equitable funding model for the existing 44 cent Solar Bonus Scheme payments would include a contribution from electricity retailers as well as recognition that solar PV customers should not be exempt from appropriate network charges. The retailer contribution should be linked to the estimation of the fair and reasonable value for solar PV exports as determined by the QCA. This would reduce the quantum of feed-in tariff payments that need to be recovered through network charges and therefore reduces the cost impact on non-solar PV customers.

## 2 Defining a fair and reasonable value for PV exports

Energex is of the view that a fair and reasonable value for solar PV exports to the grid should ensure that the value paid to the solar PV owner is reflective of the system wide net benefit that a kWh of generation provides to the National Electricity Market. Ideally the feed-in tariff should provide an appropriate price signal regarding when and where export to the grid is most valuable.

To the extent that some costs and benefits of solar PV exports are allocated to market participants and customers through existing market and regulatory arrangements, these costs should be excluded from the feed-in tariff rate.

Furthermore, Energex believes that the arrangements established for the provision of feed-in tariff payments to customers with solar PV should not attempt to correct or compensate for other market arrangements that may distort customer behaviour and/or cost allocation to various market participants and customers. Where these deficiencies exist these should be addressed directly by seeking changes to those arrangements rather than compensating for them through the feed-in tariff.

Energex would urge the consideration of the potential uptake of other distributed energy resources as part of this review. For example, micro-wind turbines, fuel cells and energy storage, should be considered in the QCA's assessment of a fair and reasonable value for exported electricity to the Queensland electricity grid. Energex notes that differences in the firmness of supply and ability to control the time of dispatch to the grid may support an argument for different feed-in values for different technologies or a feed-in tariff with a time varying rate structure. The QCA should consider whether these differences are best dealt with through the feed-in tariff or whether they are adequately valued through existing market and regulatory arrangements.

## 3 Estimating a fair and reasonable value of PV exports

### 3.1 Network costs/benefits

Energex considers that it would be difficult to accurately estimate network costs and benefits for inclusion in a fair and reasonable value for solar PV exports. In contrast to retailers, where there is a clear reduction in costs when electricity is exported to the distribution network, the value to distribution networks is less certain. Solar PV exports may in some circumstances and locations result in a net benefit, while in other cases this will impose additional net costs on network businesses. As discussed below, the distribution of these costs and benefits between load customers and solar PV owners is dependent on the prevailing regulatory framework and location specific differences in network design, configuration and loading. Energex considers that network costs and benefits are therefore best addressed through the relevant regulatory frameworks and not through the feed-in tariff.

Customer installation of distributed energy resources such as solar PV may alleviate or delay the need for network augmentation in some locations. Where this occurs the benefit is realised via a lower Regulated Asset Base (RAB) and consequently lower network prices for the relevant customer classes. Any potential benefit is more likely to occur in areas supplying commercial and industrial customers due to the more coincident nature of electricity demand and solar PV generation output.

Network costs may arise due to the need to upgrade or reconfigure the distribution network in order to absorb export electricity from solar PV while maintaining legislated service standards and quality of supply. Upgrade or reconfiguration costs are more likely to emerge in residential areas where solar PV generation typically occurs at times of light network load and has little or no impact on network loads during the evening peak consumption period.

The AER's Connection Charging Guideline, which becomes applicable upon the implementation of the National Energy Customer Framework in Queensland, indicates that the cost of relieving a specific network constraint should be allocated directly to those parties seeking to have the constraint removed unless there is a demonstrable benefit to other network users. The guideline is yet to be applied in practice and thus there is an ongoing degree of uncertainty as to how these investments should be funded. If the work is determined to be a standard control service as it provides benefits to all customers, the investment would be included in the RAB and recovered by DUoS (i.e. the cost would be spread across appropriate customer classes). However, if the benefit is determined to accrue only to solar PV



customers the expenditure may be more appropriately funded as an alternative control service with the costs allocated to solar PV customers.

Depending on which cost recovery approach is adopted and whether or not there are any benefits to non solar PV customers it is possible that solar PV customers could be over or under compensated for the network value associated with the export of solar PV generation to the grid. Energex also considers that the latter case is more likely for technologies with the flexibility to time-shift the export of electricity to match times of greatest market value. In these circumstances Energex believes that market arrangements need to provide a signal to consumers regarding the differential network value of electricity exported to the grid at different times of the day. This could potentially be achieved through a feed-in tariff with a time of use rate structure. This may comprise a time varying network component and either a flat rate or time varying retail component. However, Energex believes that it would be difficult to estimate this differential in the form of a cents/kWh value for inclusion in the feed-in tariff.

An alternative could be to establish different feed-in tariff rates for different technologies although this approach is arguably less efficient. The potential for differing technical requirements and/or costs to connect to the distribution network may also act as a signal to customers regarding the relative value of different technologies.

### **3.2 Distribution Losses**

Energex agrees that solar PV exports are likely to result in a reduction in transmission and distribution losses. Improvements in network losses should be reflected in the transmission and distribution network loss factors that are used in the market settlements process and therefore impact on customer electricity costs.

Energex believes there would be considerable cost and effort required to accurately quantify avoided distribution losses for the purposes of inclusion in the feed-in tariff. If the Authority wishes to pursue the inclusion of avoided distribution losses then Energex considers that it would be necessary for the Authority to work with the distributors and independent experts to determine the proportion of network losses that are avoided by solar PV exports.

## **4 Implementing a fair and reasonable value for PV exports**

### **4.1 Form of Regulation**

The appropriate form of regulation may vary depending on the final definition and structure of the feed-in tariff. Under an avoided retail cost methodology, Energex agrees that a light handed benchmark approach that allows the retail market to determine the structure and rate of the feed-in tariff is appropriate. However, it is recognised that in areas with insufficient retail competition a mandated minimum retail rate is likely to be required.

Under a time of use methodology, however, a more heavy handed regulatory approach would be required to ensure that this structure was ultimately offered to customers to provide the right price signals to drive efficient investment choices.

### **4.2 Metering**

Energex does not see that the introduction of gross metering arrangements for feed-in tariffs is more efficient for the market. In particular, Energex is concerned by the suggestion that the relative cost reflectivity of network tariffs provides justification for gross metering compared to net metering. Ensuring equitable network charges are able to be passed on to customers is considered more appropriate in ensuring PV customers pay the true cost of their supply from the network.

Solar PV is but one of a variety of consumer technologies that may contribute to lower electricity volumes supplied through the electricity grid. The resulting implication for network prices is a function of the existing tariff structure and the solution should be network tariff reform. Energex does not consider that it is necessary to attempt to overcome or minimise the contribution of solar PV exports to this issue by adopting a gross metering arrangement. Energex encourages the Authority to consider the costs and benefits of both net and gross metering options and to exclude those factors that can be corrected through alternative market mechanisms such as tariff reform or application of appropriate tariffs.

Under a net metering arrangement, where the feed-in tariff is lower than the retail electricity rate, the consumer has an incentive to maximise in-house use of solar generation, while under a gross metering arrangement the consumer is indifferent between in-house use and export. To the extent that a gross feed-in tariff results in higher levels of exported electricity than would be the case under a net metering arrangement, this could result in the need for a greater level of investment in the distribution network to manage those energy flows. These costs may be passed through to all customers in the form of higher network charges. Gross metering may



also require additional metering in some instances. In circumstances where customers became ineligible under the net scheme a site visit would also be required to reconfigure the metering from net to gross. Changing to a gross scheme would also impose additional administrative costs on the distribution business, particularly as penetration increases, in terms of records management and being able to identify which customers are on which metering arrangement. Under current regulatory arrangements these costs would be passed through to customers through higher network charges.

Gross metering could also make it more expensive for some customers to connect solar PV to the network due to the need to connect the inverter directly to the export revenue meter. This is particularly an issue where the inverter is connected to a sub board that is remote from the revenue meter(s), a situation which is common on acreage blocks and in rural and regional areas.

Energex also questions whether a gross metering arrangement would be inconsistent with established practices for embedded generation in the market. Customers who have power generation facilities located at load consuming sites have always had the opportunity under the rules to export their entire generation output either directly to a retailer or to the market or to use this generation to offset internal consumption and export only the excess. It would therefore seem to be inconsistent to force solar PV customer to effectively sell their entire generation output to the market.

## **5 Review of a fair and reasonable value for PV exports**

Energex agrees with the QCA that there is a need to consider the trade off between the cost of reviewing the feed-in tariff and the benefits to the market and consumers of ensuring that export electricity is being paid a price that reflects its value in the market. In coming to a conclusion on how frequently these reviews should be undertaken the QCA should take into account the extent to which the underlying value drivers are likely to change in any given year. To the extent that these drivers are generally not expected to change significantly over a 12 month period then Energex considers that a multi-year review with a defined path is acceptable provided that a flexible review mechanism is available to respond to unexpected changes.

Energex would recommend that in addition to reviewing the feed-in tariff rate the review process should also consider the form of regulation and structure of the feed-in tariff to ensure that the framework keeps pace with technological and other market developments.

## 6 Ongoing costs of the Solar Bonus Scheme

Energex notes that the recovery of the feed-in tariff payments in excess of those approved by the AER in Energex's 2010-15 regulatory determination are subject to pass through provisions and approval by the AER.

### 6.1 Expected costs from 2012/13 to 2015/16

The following tables show:

- forecast number of new applications per year;
- forecast total connected inverter capacity at 30 June each year;
- forecast total energy exported to the grid each year; and
- forecast direct feed-in tariff payments each year.

**Table 1 Solar PV Forecasts - \$0.08 / kWh feed in tariff**

	Annual Change in Connections	Total Connected Capacity	Annual Export Electricity	Direct FIT Payments
2012/13	13,000	26 MW	3 GWh	\$0.25M
2013/14	24,700	85 MW	15 GWh	\$1.22M
2014/15	N/A <sup>(5)</sup>			
2015/16	N/A <sup>(5)</sup>			

#### Assumptions:

1. Forecast connections based on observed applications of approximately 50 per day during August 2012.
2. Forecast connections in 2013/14 include new connections plus a 6% transition rate of customers who lose eligibility to the \$0.44 / kWh feed-in tariff due to moving premise.
3. It is assumed that there are no new connections beyond 30 June 2014 due to the Queensland Government's stated intention to legislate for the Solar Bonus Scheme to end on 1 July 2014.
4. Forecast capacity assumes average system size of 2 kW.
5. It is also assumed that with the end of the \$0.08/kWh feed-in tariff on 1 July 2014 (as indicated in the Issues Paper), there will be no ongoing payments to customers previously earning the \$0.08 / kWh feed-in tariff, i.e. they will transition to the new feed-in tariff regime as determined by this review.



**Table 2 Solar PV Forecasts - \$0.44 / kWh feed in tariff**

	Annual Change in Connections	Total Connected Capacity	Annual Export Electricity	Direct FiT Payments
2012/13	48,000	525 MW	260 GWh	\$113M
2013/14	-11,700	490 MW	270 GWh	\$118.5M
2014/15	-11,000	457 MW	255 GWh	\$112M
2015/16	-10,400	426 MW	240 GWh	\$105.5M

**Assumptions:**

1. Forecast connections in 2012/13 based on the receipt of 63,000 applications in the fortnight to 9 July 2012 of which 75% are assumed to proceed to be installed and metered.
2. Forecast connections for 2013/14 to 2015/16 are negative which reflects the closure of the \$0.44 / kWh tariff to new applicants and an assumed 6% of customers who cease to be eligible for this tariff due to moving premises.
3. Forecast capacity is based on 380 MW of connected capacity as at 30 June 2012 and an assumed average system size of 3 kW for new connections and for installations that cease to be eligible for the \$0.44 / kWh tariff over time.

**6.2 Equitable sharing of scheme costs**

Energex agrees with the position that retailers are benefiting from the export of solar PV under the existing Solar Bonus Scheme and that it is appropriate that they contribute toward the cost of the legislated payments.

While it is recognised that this would most likely result in the withdrawal of the voluntary premiums being offered by some retailers, Energex does not believe that this should be a consideration in the QCA’s deliberations. Solar PV customers are guaranteed \$0.44 / kWh under the original Solar Bonus Scheme until 2028 provided they continue to meet the eligibility criteria whereas retailers have always been able to change or remove the premium rates offered. This is part of the commercial risk that the solar PV owner accepts when they make their investment.

Energex considers that the relative contribution of retailers to the Solar Bonus Scheme should be linked to the estimation of the fair and reasonable value for solar PV exports as determined through this review. For example, under a benchmark range based on a retailer avoided costs and net metering, one possibility would be to set the retailer contribution to the Solar Bonus Scheme as the mid point of this range for each year.