

25 November 2015



Queensland Productivity Commission
PO Box 12112
George Street
Brisbane QLD 4003

Dear Sir/Madam,

Solar Feed-in Pricing in Queensland: Issues Paper October 2015

Energex Limited (Energex) welcomes the opportunity to comment on the Queensland Productivity Commission (QPC) discussion paper on Solar Feed-in Pricing in Queensland. Energex understands that the primary objective of the Solar Feed-in Pricing Inquiry is to determine the best way of achieving a fair price for solar power produced by homes and small businesses.

Energex supports the key findings from the 2013 Queensland Competition Authority review into a fair price for solar including that any future feed-in tariff schemes should be funded by electricity retailers and that there is currently no evidence to support a regulated tariff in the SEQ area. In addition, it is important that any policy framework that is introduced to support new technologies is appropriately developed so that the risk of unintended consequences is minimised.

Our detailed response to the issues paper is attached.

Should you have any queries regarding this submission, please do not hesitate to contact Mr Neil Andersen, Group Manager Regulation & Pricing, on (07) 3664 4009.

Yours sincerely

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Response to Queensland Productivity
Commission (QPC) Issues Paper

Solar Feed-In Pricing in Queensland: 25 November 2015



positive energy

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1 Introduction

Energex welcomes the opportunity to respond to the Queensland Productivity Commission's (QPC) consultation on solar feed in pricing in Queensland. Energex understands that the QPC's objective is to determine the best way of achieving a fair price for solar power produced by homes and small businesses.

In its consultation paper, the QPC recognises that Queensland has one of the highest levels of solar penetration in the world. The significant uptake of solar PV in South-East Queensland (SEQ) in response to the 44c/kWh solar bonus scheme (SBS) exceeded all expectations, starting with 291 installed systems on the Energex network in June 2008 to in excess of 290,000 systems at the end of June 2015. The total number of solar PV systems in SEQ grew by more than 28,500 during the 2014-15 financial year. Over the 2010-15 regulatory period, \$691 million (approximately 10% of Energex's revenue) was paid to customers in SBS feed-in tariffs (FiT). For the 2015-20 regulatory period, Energex estimates that SBS FiT payments will cost customers (including non-SBS participants) a further \$1,387 million¹ (approximately 17% of Energex's revenue over this period).

The objectives for solar export pricing policies have evolved in line with market developments, technological advances and the changing needs of consumers. At the time the SBS was introduced in 2008, the policy objective was to encourage investment in renewable electricity generation. As electricity prices continued to increase, many residential consumers adopted energy efficiency measures to reduce their consumption. However many found the efficiency gains made were quickly surpassed by continued increases in electricity prices. Under these circumstances, consumers increasingly viewed solar PV installation as a way to take a more active role in controlling the size of their electricity bills.

Solar PV penetration rates have also been boosted by financial incentives from the State and Federal Governments. These incentives have also coincided with falling technology costs for solar PVs. This has led to a competitive solar market in South East Queensland (SEQ) with many solar PV installation businesses and electricity retailers offering market-based feed-in tariffs.

A key priority for Energex is to continue to maintain an efficient and resilient electricity network whilst accommodating new and emerging technologies to meet future customer and business requirements. It is important that the policy framework that is introduced to support these new technologies is appropriately developed so that the risk of unintended consequences is minimised, including ensuring to the extent possible that the costs of delivering new technologies are borne by the beneficiaries of them not those that receive little or no benefit. Failure to do so, can have a material adverse impact on certain consumers (ie through higher electricity prices) and the efficient operation of the electricity and alternative generation markets. Once the policy framework/objectives have been set, the market should be allowed to work and have the flexibility to respond to new industry and technology developments.

Energex does not believe there are any market, regulatory or policy changes required to implement feed-in tariffs in SEQ, as a competitive market for solar PV customers appears to currently exist (based on market-based feed-in tariff and other solar take-up offers reflected in ongoing solar PV connections to Energex's network). Further, any regulated solar feed-in tariff may result in cross-subsidies from non-solar to solar consumers.

¹ The forecast SBS payments for the 2015-20 period include the under recovery amounts for 2013-14 and 2014-15 as per the AER Final Determination, October 2015.

However, if the Queensland Government chooses to develop a feed-in solar tariff policy, one policy option could be to target those commercial and industrial customers which have an energy consumption profile that more closely aligns with the generation profile of solar PVs. By targeting solar PV in predominantly commercial and industrial areas there would likely be a more localised reduction in the daytime peak demand on substation and feeder levels, providing a larger network benefit for all electricity consumers.

Measures could also be introduced to target customers currently disadvantaged under the legacy Feed-in Tariff (FiT) schemes eg customers in rental or leased premises, non-detached homes (ie units, apartments, townhouses, duplexes, etc.) or complexes with central metering (ie gated communities). These customers are currently disadvantaged as the electricity charges that these customers pay includes the cost of subsidising those customers who have solar PV systems installed. Customers could be provided with the option to invest in community owned 'solar farms' in order to overcome current barriers to market participation. Distributors have a critical role in facilitating these initiatives from technical, safety and economic perspectives.

The main challenge in any policy interventions are that they will potentially distort or stifle solar and alternative energy technology market developments and/or create additional policy-driven price cross-subsidies from non-solar to solar consumers.

In 2013 the Queensland Competition Authority (QCA) released a report into estimating a fair and reasonable solar feed-in tariff for Queensland. Energex supports the key findings from this review including that any future feed-in tariff schemes are funded by electricity retailers and there is no evidence to support a regulated tariff in the SEQ area.

Consistent with Energex's submission to the QPC's consultation on electricity pricing in Queensland, Energex's submission to this consultation has been guided by the following key themes:

- 1) Ensuring efficient costs for customers
- 2) Providing choice and control for customers
- 3) Promotion of economic development for Queensland by acting in the long term interests of consumers
- 4) Facilitation and integration of low carbon energy options.

The QPC has invited submissions on the issues paper by 23 November 2015.

Responses to the specific questions raised in the issues paper are outlined in Section 3.

2 Energex's key recommendations

Energex's recommendations in relation to the most significant issues raised in QPC's Inquiry Paper are set out below.

2.1 A framework for assessing solar export pricing

- Where effective competition exists in the absence of externalities, there is no case for economic regulation or intervention.
- Energex supports the QCA's view that there is a competitive solar market in SEQ and that a regulated solar feed-in tariff is not necessary.
- It is important that renewable energy plans are developed from a holistic perspective and that they take into account the environmental, economic and social elements of the options. Renewable energy plans should be well targeted and holistic in order to:
 - facilitate increased uptake and integration of low carbon energy options in the Queensland energy market to the benefit of all electricity consumers
 - provide consumers with increased choice on the fuel mix and location of electricity generated
 - facilitate the efficient use of renewable energy solutions to offset capital investment in electricity networks.
- The focus should be on a broader renewable/carbon reduction policy which is technology neutral, rather than supporting any particular technologies – the market should be left to respond in the most efficient way.
- Solar export pricing policies should only be developed where there is a clear market failure. If market failure is assessed to exist, any solar export pricing policy should be developed from a whole of electricity supply chain perspective.

2.2 Feed-in tariffs: What should be regulated and how

- Energex does not consider that regulated feed-in tariffs are necessary in SEQ at this point in time.
- Energex supports the key finding from the 2013 QCA review that any future feed-in tariff schemes should be funded solely by electricity retailers, given they receive a direct financial benefit from on-selling PV exports.
- The increase in solar PVs has provided limited benefit to Energex's network as only a small portion of the solar generation occurs during the domestic peak demand time. The high penetration of solar PV has also reduced energy throughput (kWh) delivered through the grid reducing network utilisation.
- Energex believes there is merit in providing customers with more detailed information on the impact of new technologies on the network and the electricity market more generally and recognises that we play a part in this education role.
- Due to the structure of the Government's Uniform Tariff Policy, customers are not provided locational price signals. In light of this, the most effective and efficient way to provide locational pricing signals to customers is via targeted programs/schemes as they allow Energex to address a specific locational network problem and to make periodic changes to the program settings to ensure the measures still support its overarching

objectives. Energex has used this type of approach for a number of its demand management initiatives (eg cool change trials and Energy Conservation Communities (ECC) initiative).

2.3 Barriers to a market for solar exports

- Energex does not consider that there are any barriers to a well-functioning solar export market in SEQ.
- A primary objective for Energex is to continue to maintain an efficient and resilient electricity network whilst accommodating new and emerging technologies, such as solar, to meet future customer and business requirements.
- If the Queensland Government chooses to develop a solar feed-in tariff policy there are a number of policy measures that could be adopted to address the inequalities that currently exist under the legacy FiT arrangement; such as targeting commercial and industrial customers and customers in rental or leased premises, non-detached homes (ie units, apartments, townhouses, duplexes, etc.) or complexes with central metering (ie gated communities).
- Customers could be provided with the option to invest in community owned 'solar farms' in order to overcome current barriers to market participation. Distributors have a critical role in facilitating these initiatives from technical, safety and economic perspectives.
- For the benefits of customers it is important that while there are issues to be managed with the facilitation of new technologies, these should be addressed in a way that delivers lowest overall market costs.
- There are potential benefits to be realised from new technologies working in conjunction with solar PV generation. For example, energy storage systems, on either the customer or the network side, can provide options to store excess energy for use during peak demand periods, improving network utilisation and reducing network costs.

3 Question responses

3.1 A framework for assessing solar export pricing

No.	Question	Response
2.1	Is there evidence of significant and enduring market failures in the solar export market in Queensland?	There is no evidence to suggest there is any significant or enduring market failures in the South East Queensland (SEQ) solar export market. As noted by the Queensland Competition Authority (QCA) in 2013, there is a competitive market for voluntary funded feed-in tariff premiums. Energex believes this still applies because on average between 2,000 and 2500 solar systems are connected each month in SEQ ² and that the solar industry has continued to evolve to meet the needs of the SEQ market, for example through the use of solar leasing or solar power purchase agreements (PPAs).
2.6	What are the objectives of a solar export pricing policy?	<p>The primary trigger for policy intervention is when there is a demonstrated market failure. If policy intervention is judged to be necessary (i.e. a market failure exist), its primary objective should be to address the identified source of market failure. The policy measures should not attempt to also correct or compensate for other market arrangements that may distort customer behaviour and/or allocate costs to various market participants and customers. Where these issues exist they should be addressed directly by seeking changes to those arrangements rather than through the solar export pricing policy.</p> <p>In practice, the objectives for solar export pricing policies have evolved in line with market developments, technological advances and the changing needs of consumers. At the time the Solar Bonus Scheme (SBS) was introduced in 2008, the policy objective was to encourage investment in renewable electricity generation, thereby facilitating a change in the fuel mix of electricity generated/used in Queensland and reducing the state's carbon footprint. As electricity prices continued to increase, many residential consumers adopted energy efficiency measures to reduce their consumption. However many found these efficiency gains were quickly surpassed by continued increases in electricity prices. Under these circumstances, consumers increasingly viewed solar PV installation as a way to take a more active role in controlling the size of their electricity bills.</p> <p>Since the introduction of the SBS, the market for solar PV customers in South East Queensland (SEQ) has matured. As a result the Queensland Competition Authority (QCA) recommended in 2013 that the regulated minimum feed-in tariff was no longer required, based on competition between retailers offering feed-in tariff premiums. The QCA also noted that any future feed-in tariff scheme should be funded solely by electricity retailers, given they receive a direct financial benefit from on-selling PV exports.³</p> <p>The solar export pricing policy measures implemented by the Queensland Government (e.g. SBS) have been</p>

² In the 2014-15 financial year a total of 28,552 solar systems were connected to Energex's network

³ QCA. 2013. Final Report Estimating a Fair and Reasonable Solar Feed-in Tariff for Queensland.

No.	Question	Response
		<p>successful in terms of its initial objective – to encourage investment in renewable electricity generation - as seen through the increased penetration rates of solar PVs. However the policy has resulted in a number of unintended consequences.</p> <p>The majority of solar PV installations have been for detached housing. For various reasons (i.e. policy settings, technology requirements and a customer’s financial circumstances) many customers residing in rental or leased premises, apartments or large unit/townhouse complexes have not directly benefited from the policy initiatives. Customers have also been disadvantaged by the subsequent increase in electricity prices as a result of legacy schemes. As noted in the AER’s recent determination, the SBS is forecast to cost Energex’s customers, including non-SBS participants \$1,387.5 million (\$ nominal) over the 2015-20 regulatory control period.⁴</p> <p>The increase in solar PVs has also provided a limited benefit to Energex’s network as only a small portion of the solar generated occurs during the domestic peak time. At the same time as having a very limited impact on network peak demand (and hence network costs), the high penetration of solar PV has reduced energy throughput (kWh) delivered through the grid. Under the current volumetric network and retail tariffs, solar PV customers are therefore avoiding their fair share of network cost.</p> <p>Any future solar exporting pricing policy must take into account the above factors when setting its objectives and determining the associated policy instruments. Energex is of the view that where possible, the parties that are receiving the benefit should proportionately share the costs of implementing the technology, including any costs associated with modifying the network. Furthermore any new policy measures must be appropriate given the current market circumstances (including market failures) and be transparent. To ensure the policy response remains appropriate, especially when it relates to an evolving market, the policy must be periodically assessed to ensure policy intervention is only used when there is a demonstrated market failure.</p> <p>If the Queensland Government chooses to develop a solar export pricing policy for SEQ, rather than allowing the market to respond, the overarching principle should be achieving a more equitable sharing of the cost and benefits of solar. It should therefore be focused on addressing the inequalities that have occurred under the SBS or cross subsidies inherent in existing tariffs. Consideration should also be given to preventing increases in cross subsidies that may result from technological advances (e.g. if customers on the Government’s now closed 44c/kWh SBS are able to install Battery Energy Storage Systems (BESS)).</p>
2.7	Where objectives are in conflict, which objectives take priority and why?	In the event multiple policy objectives have been set and identification of priorities is required, policy makers should be guided by the National Electricity Objective ⁵ , which provides an evaluation framework that is focused on delivering market outcomes that are in the long term interests of consumers. Failure to adopt such an approach may compromise

⁴ AER. 2015. Final Decision Energex determination 2015-16 to 2019-20: Overview. October. p 11.

⁵ The National Electricity Objective, is to “promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to (a) price, quality, safety, reliability and security of electricity supply; and (b) the reliability, safety and security of the national electricity system”.

No.	Question	Response
		<p>the outcomes for consumers and efficient development of the Queensland electricity market in its broadest sense. The Government should focus on a broader renewable energy/carbon reduction policy rather than supporting particular technologies – the market should be left to respond in the most efficient way.</p> <p>Renewable energy plans should be well targeted and holistic in order to:</p> <ul style="list-style-type: none"> • Facilitate increased uptake and integration of low carbon energy options in the Queensland energy market to the benefit of all electricity consumers • Provide consumers with increased choice on the fuel mix and location of electricity generated • Facilitate the efficient use of renewable energy solutions to offset capital investment in electricity networks.
2.8	<p>What principles should be used to guide solar export pricing policy and any regulation of feed-in tariffs?</p>	<p>The energy sector, including policy makers, have invested heavily over recent years in establishing regulatory and policy frameworks that provide increased transparency to electricity consumers regarding the impact of their electricity consumption decisions, i.e. the way they use electricity and the time at which they consume it. These measures have included new rules for electricity distribution network pricing, the roll out of interval meters and the deregulation of retail prices. Consistent with these measures, the principles for any future solar export pricing policy must be transparent in its objective(s), be designed to achieve its defined objective(s) and no more and have regard to the potential occurrence of unintended consequences, in particular, not to distort network or non-network investment decisions (e.g. investment in non-solar new technologies).</p> <p>At this point in time, Energex does not see the need for and hence does not support the use of regulated solar feed-in tariffs in SEQ because:</p> <ul style="list-style-type: none"> • There is a competitive market for solar feed-in tariff premiums. • Solar export pricing policies should be funded solely by those consumers who directly benefit from installing solar PV. In the case of on-selling PV exports, electricity retailers receive a direct financial benefit. • The pace of technological advancement is increasing the range of energy services available to consumers. However it also creates an additional level of complexity for policy makers. The various energy services markets are best suited to deliver new technologies, with energy consumers best placed to choose amongst them. • As evidenced by the SBS, it is difficult to get the policy settings right in an environment of rapidly changing technologies and any unintended consequences can have a material adverse financial impact on consumers. • Regulated feed-in tariffs may distort the network pricing signals seen by consumers.

3.2 Feed in tariffs: What should be regulated and how

No.	Question	Response
3.1	What are the costs and benefits of exported solar electricity?	<p>The increase in solar PVs has provided limited benefit to Energex’s network as only a small portion of the domestic solar generation occurs during the domestic peak demand time. At the same time as having a very limited impact on network peak demand (and hence network costs), the high penetration of solar PV has reduced energy throughput (kWh) delivered through the grid. This decline in energy throughput has had a material impact on network prices as Energex’s allowable revenues are set in accordance with a revenue cap and a significant proportion of Energex’s allowable revenue is recovered through consumption-based charges (kWh). Furthermore, under the current volumetric network and retail tariffs, solar PV customers are therefore avoiding their fair share of network cost.</p>
3.2	Who incurs the costs and accrues the benefits from exported solar electricity? How will future market developments impact on costs and benefits?	<p>As noted in our response to Question 2.6, electricity prices have also increased as a result of legacy FiT schemes (i.e. SBS) as they were initially funded via network prices. Over the 2010-15 regulatory period a total of \$691 million (to June 2015) has been paid to customers in feed-in tariffs. Over the 2015-20 regulatory control period the SBS will add an estimated \$1,387 million (\$ nominal) to Energex’s approved revenue.</p> <p>The increase in solar also presents a number of challenges for Energex in terms of the safe and efficient management of the network. These challenges include maintaining electricity supply quality for customers and managing the effects of reverse power flows; both of which impact the cost of providing network services. In addition, Energex has experienced costs relating to application assessments and administration, meter connection and safety assessment and voltage complaint response for solar PV installations.</p> <p>Emerging technologies, including home energy systems, battery storage, and electric vehicles (EVs) will have a varying range of impacts on the network - physical, operational and/ regulatory - depending on the nature of connection to the network or customer installations.</p> <p>A key priority for Energex is to continue to maintain an efficient and resilient electricity network whilst accommodating new and emerging technologies to meet future customer and business requirements. Energex has an important role to play in maximising the benefits customers derive from emerging technologies – as discussed in our response to the Electricity Pricing Inquiry.</p> <p>At the time of introducing the SBS, batteries behind the meter particularly at the residential premise were not explicitly considered as the technology was not sufficiently developed. However, there have been significant developments since the scheme was initially introduced, for example the uptake of Battery Energy Storage Systems (BESS) by residential consumers.</p> <p>The legislative positions regarding the eligibility of customers with the SBS FiT also installing BESS is not sufficiently clear and should be reviewed by Government. This lack of clarity may result in existing SBS customers receiving significant additional benefits from being able to store energy and control its release back into the network. This is beyond the original intention of the scheme. Energex believes the installation of BESS should result in the removal of the customer’s SBS FiT to prevent further cross-subsidies at the expense of all customers.</p>

No.	Question	Response
3.4	How should the price be structured and paid? Should feed-in tariffs account for variations in value due to location and time?	<p>As noted in our response to Question 2.8, Energex does not see the need for a regulated solar feed-in tariff.</p> <p>In response to recent National Electricity Rules (NER) electricity distribution pricing changes, consumer feedback and the AER's 2015-2020 revenue determination, Energex has reviewed its network tariffs and has commenced a tariff reform program. Energex's tariff reform program seeks to ensure network tariffs are more appropriately aligned to the way network assets are used and the associated costs. Energex believes customers should be provided with tariffs that give them options to control their own electricity costs and provide a genuine informed choice.</p> <p>Notwithstanding our earlier comments on the merits of re-introducing regulated feed-in tariffs in SEQ, Energex believes there is merit in providing customers with more detailed information on the impact of their interaction with the network and the electricity market more generally i.e. in terms of the location of solar PVs at the premise, within the grid more generally and the time in which the energy is discharged. However, it should be noted that due to the structure of the Government's Uniform Tariff Policy, electricity customers are not provided with locational price signals. Furthermore due to the associated regulatory and policy obligations surrounding the setting of these tariffs, locational signals could not be provided in a timely and non-distortionary way.</p> <p>In light of this, Energex considers that the most effective and efficient way to provide locational pricing signals is via targeted programs/schemes as they allow the business to address a specific customer segment and to make periodic changes to the program settings to ensure the measures still support its overarching objectives. Energex has used this type of approach for a number of its demand management initiatives (eg cool change trials and Energy Conservation Communities (ECC) initiative).</p>
3.5	Would market, regulatory or policy changes be required to implement feed-in tariffs? If so, what changes would be required?	<p>As noted in our response to Questions 2.6 and 2.8, Energex does not believe there are any market, regulatory or policy changes required to implement feed-in tariffs in SEQ, as the market for solar PV customers currently appears to be competitive.</p> <p>If the Queensland Government chooses to develop a new feed-in tariff policy, one policy option could be to target commercial and industrial customers as they have an energy consumption profile that more closely aligns with the generation profile of solar PVs. If this type of intervention is adopted, it is important that steps are taken to minimise the risk of unintended consequences, including ensuring to the extent possible that the costs of the policy measures are borne by the beneficiaries of them not those that receive little or no benefit. Failure to do so, can have a material adverse impact on certain consumers (i.e. through higher electricity prices) and the efficient operation of the electricity and alternative generation markets.</p> <p>From an operational perspective, the metering arrangements for a feed-in tariff policy that targets commercial and industry customers should be consistent with those for residential customers. Energex considers that the current net metering approach is preferable to a change to gross metering for feed-in tariffs provided to PV customers as it should result in lower costs to the solar PV owner and lower administrative and metering costs to network businesses.</p> <p>The policy could also seek to target customers who have been unable to take up solar PV incentive arrangements such as those who reside in rental or leased premises or apartments/large unit/townhouse complexes. Based on the</p>

No.	Question	Response
		<p>Queensland Household Energy Survey 2014, it is estimated that across South East Queensland only 6% of the estimated 290,000 non-detached properties (ie units, apartments, townhouses, duplexes etc) and just 5% of the 235,000-plus rented homes (private and public) are identified as having solar PV installed.</p> <p>These customers are currently disadvantaged as they are unlikely to have any control over the decision whether or not to install solar PV systems. Moreover, the electricity charges that these customers pay includes the cost of subsidising those customers who have solar PV systems installed. One option is to dilute the impact of the SBS for this customer segment by providing them with the option to invest in community owned solar farms. These are centralised solar facilities owned by community members, who receive credits on their electricity bill for the power produced. The solar farm can be operated and maintained by the utility or a third party operator and customers receive credit based on their share/investment. Energex notes that providing this investment alternative may not help those customers where the constraint to participation is a financial one.</p> <p>Consideration should also be given to the impact of new technologies on the policy settings, namely to address any unintended consequences of policy intervention. For example, at the time of introducing the SBS, batteries 'behind the meter', particularly at residential premises, were not explicitly considered as the technology was not sufficiently developed. However, there have been significant battery storage developments since the scheme was initially introduced which could provide further future financial benefits to SBS residential consumers due to the installation of BESS.</p>

3.3 Barriers to a market for solar exports

No.	Question	Response
4.4	Are there other barriers to a well-functioning solar export market?	<p>Energex does not consider that there are any barriers to a well-functioning solar export market in SEQ. Since the introduction of the SBS in June 2008, the number of Energex customers with solar PVs has increased from 291 customers to in excess of 290,000 customers (June 2015), representing 23% of total domestic customers. This uptake rate has exceeded all expectations, driven by a combination of Federal and State incentives, falling solar PV technology costs and rising electricity prices.</p> <p>The <i>Electricity Act 1994</i> (the Electricity Act) contains a connection obligation⁶, which provides that a Distribution Network Service Provider (DNSP) is obliged to provide connection services to a customer who has applied for them, if the premises is in its distribution area and unless the customer is an excluded customer, the premises are National Metering Identifier (NMI) premises (subject to certain exceptions). This obligation applies to all customers, including those wishing to connect distributed generation technologies, such as solar PV.</p> <p>Energex has pro-actively engaged with customers and the solar PV industry and has developed streamlined processes and provided supporting information to guide customers and solar PV installers on how to connect to the network. Energex’s website also provides information to customers on application processes and responsibilities of solar PV owners and for solar installers, information on installation processes, FAQs on reading the meter and access to solar-related data.</p> <p>A key priority for Energex is to continue to maintain an efficient and resilient electricity network whilst accommodating new and emerging technologies to meet future customer and business requirements.</p> <p>Energex is currently conducting voltage investigations for an average of more than 30 solar related issues per month and remediating these issues with a number of measures including balancing the PV generation, changing transformer taps and installing new transformers. We are also trialling a number of new products to manage these issues such as installing monitors on our LV network and at customer premises, undertaking trials of new technologies such as LV regulators and on-load tapchangers, and developing models to predict the future impacts of these new technologies on our network.</p> <p>Traditionally, distribution networks were designed to accommodate the flow of power in one direction from the substations through to the customer. However, with the rise in distributed generation on the LV network, power flows can now occur in both directions, leading to greater voltage regulation to be managed and operational issues to be addressed. Energex has obligations to ensure that solar PV systems do not cause a material degradation in the power quality to other network users and do not adversely affect operation of the distribution network. This will require the network to be adapted over time to be able to continue to deliver a safe and reliable service with acceptable power quality.</p> <p>Energex has established specific technical requirements to assist with the connection of solar PV. For inverter systems</p>

⁶ Refer Part 5, Division 2.

No.	Question	Response
		<p>≤5kVA Energex manages the voltage issues associated with high PV penetration on a local network basis and considers a range of options to address issues that may arise. For inverters greater than 5kVA a network site-specific technical assessment is carried out against a number of criteria.</p> <p>Applications that fail the criteria are offered alternative options, that could include a downsized inverter, export limiting, two or three phase connection or augmentation of the network. A customer contribution is sought to ensure that Energex's remaining customer base is no worse off financially.</p> <p>Energex and Ergon Energy have developed a joint standard for customer connection of systems up to 30kVA. While the standard is a joint standard, there are some differences in the thresholds between the two organisations for manual assessment that reflects the more rural nature of the Ergon Energy network. Currently Energex and Ergon Energy are reviewing the requirements in this standard, and have taken feedback from retailers, installers, the Clean Energy Council, Australian Solar Council and DEWS. Further changes are being considered to facilitate connection requirements.</p>
4.5	Are there examples where efficient investments in solar did not proceed because of technical, market or regulatory barriers?	<p>As noted above Energex has facilitated a record number of solar PV connections to its network, far more than was ever anticipated. As a result South East Queensland now has one of the highest levels of solar PV penetration in the world with more than one gigawatt of installed nameplate capacity of solar systems connected to the network.</p> <p>Energex has established specific technical requirements to assist with the connection of solar PV. For inverter systems ≤5kVA, there are no network (i.e. connection) related barriers to entry as Energex actions connection requests in a timely manner and manages the voltage issues that may arise from a high concentration of PV installations in a local area.</p> <p>For inverters greater than 5kVA, some delays in connection may occur as a network site-specific technical assessment must be carried out to ensure there are no adverse network impacts from the connection (i.e. safety or network reliability). Energex conducts this assessment against a number of criteria and works with customers to identify alternative options for applications that fail the criteria.</p>
4.6	Are there cost-effective ways to remove or address those barriers?	<p>As noted in our response to Question 3.5, a number of customer segments have not been able to benefit directly from the FiT schemes that have been available, either industry funded or government mandated. Energex believes there are a number of options available to increase the number of customers that can benefit from solar, either directly or indirectly via improved distribution network performance. These options will also assist with minimising the cross subsidies and inequalities that currently exist under the legacy legislated solar feed-in tariff arrangements.</p>