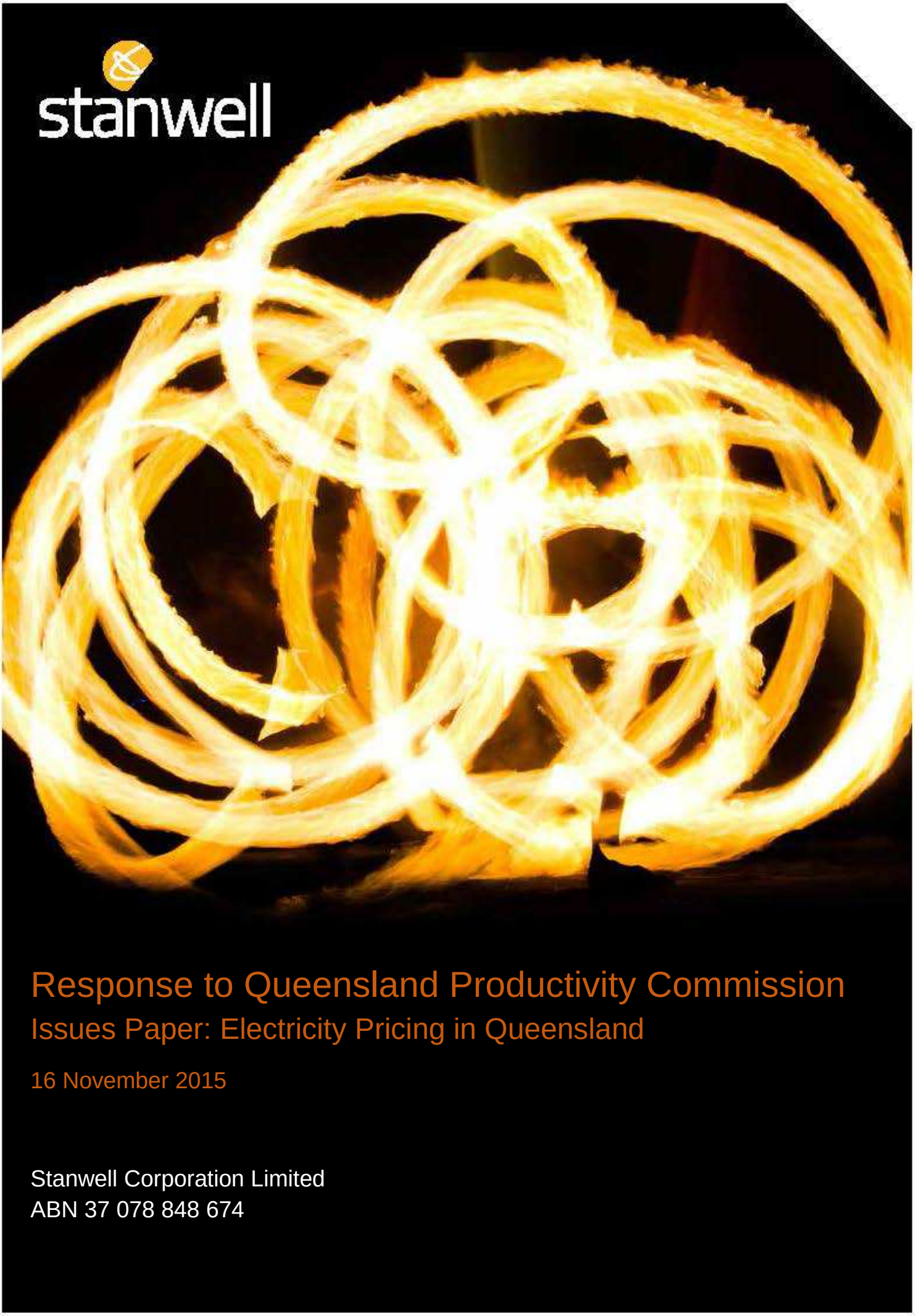

Response to Queensland Productivity Commission

Issues Paper: Electricity Pricing in Queensland

16 November 2015

Stanwell Corporation Limited
ABN 37 078 848 674

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EXECUTIVE SUMMARY

Stanwell welcomes the opportunity to provide this submission to the Queensland Productivity Commission's Electricity Pricing Inquiry.

In recent years, electricity prices have increased significantly throughout Australia. This increase in electricity prices has predominantly impacted retail customers, for whom electricity costs have more than doubled in the past five years[1], and is largely attributable to rises in network costs. The energy component of electricity prices has to a large extent remained stable.

This situation has the potential to be exacerbated by both the transition to renewable generation and associated new technologies, which will occur over coming years. In addition, there will be an increase in demand driven by the commissioning and operation of Queensland's liquid natural gas (LNG) plants. As these LNG plants begin to export, gas-fired generation will no longer have access to the large volume of low cost 'ramp gas' associated with the emerging LNG industry. As balance between supply and demand tightens, particularly during summer, wholesale prices will increase.

Higher wholesale prices as a result of higher demand (or energy constraints) are an essential part of the electricity market's design and assist in delivering average wholesale prices that support the viability of generators. In the absence of other external influences, sustained higher wholesale prices are the signal for new market entrants. This market signal has been lost through various subsidy regimes.

The most effective way to ensure the affordability of retail electricity during the transition to renewables is to allow market forces to operate, rather than seeking to drive the process of change through subsidies or regulation.

Queenslanders' need to manage household budgets will motivate them to adopt emerging technology in order to benefit from cost reflective network tariffs. This technology will include electric vehicles, smart meters, smart controllers and household battery storage systems. There is no requirement for the government to incentivise the adoption of products which already provide their own financial incentive for purchase.

Where subsidies are employed, such as through renewable energy targets or solar feed in tariffs, the costs of these should be visible on all retail bills.

The structure of the Queensland Government Owned Corporation electricity portfolio is the prerogative of the Queensland Government. Any merger or restructure will, however, be publicly scrutinised by the Australian Competition and Consumer Commission (ACCC) to ensure it does not lessen competition in Queensland and result in electricity price increases.

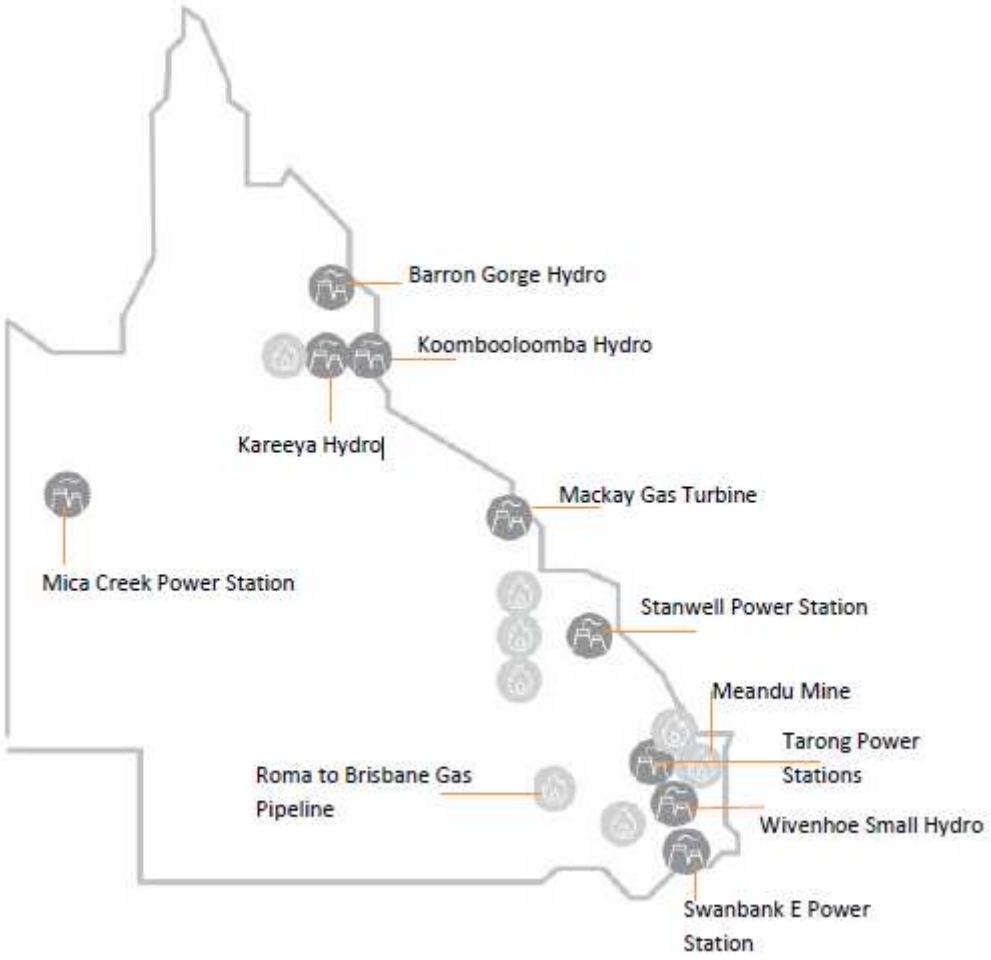
There are non-structural options which would meet Government's policy objectives. Mechanisms under this option include more rigorous business efficiency targets and allowing the generation Boards and management teams to operate as intended on an independent and commercial basis, in the same way as the private sector.

[1] Queensland Productivity Commission Issues Paper: Electricity Pricing in Queensland

INTRODUCTION

Stanwell Corporation Limited (Stanwell) is a diversified energy business which owns and manages assets worth more than $3 billion on behalf of the people of Queensland.

Stanwell owns coal, gas and water assets which it uses to generate electricity to either trade in the National Electricity Market (NEM) or sell directly to business customers. Stanwell also trades gas and coal in their respective commodity markets.



With a workforce of approximately 700 people (excluding Meandu Mine which is serviced by Downer EDI and employs approximately 350 people) located at 10 sites across Queensland, Stanwell contributes to Queensland's prosperity:

- through the safe and responsible provision of energy; and
- by providing commercial returns from its business operations to shareholders.

As a Government Owned Corporation, Stanwell's activities are overseen by a Board of Directors that is appointed by its two shareholding Ministers; the Queensland Treasurer and the Queensland Minister for Energy and Water Supply.

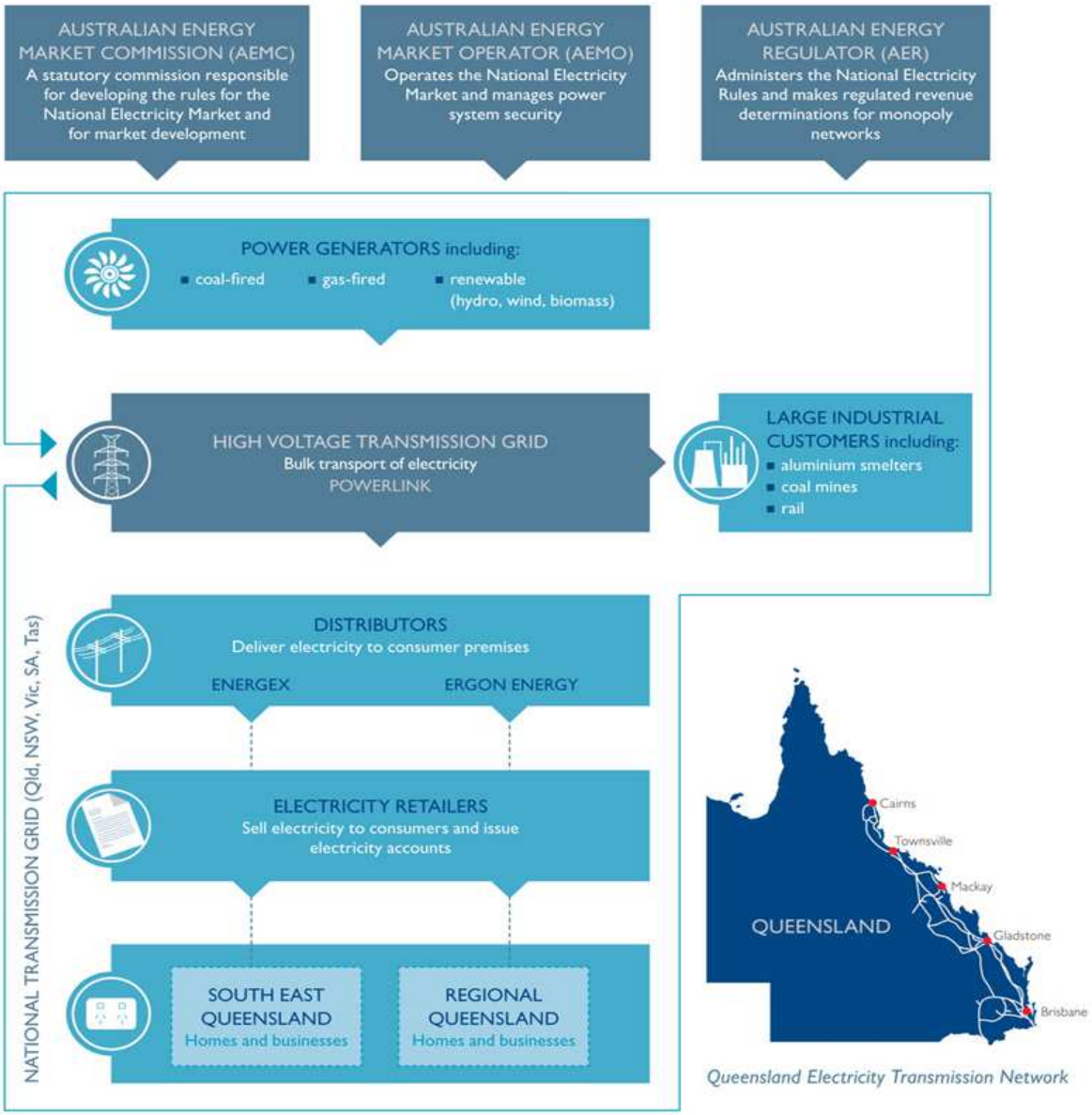
Stanwell's independent Board oversees the operations of Stanwell so that it is compliant with the Government Owned Corporations Act 1993 (Qld), the Corporations Act and the relevant laws associated with operating within the NEM.

Key role

As a power generator with a capacity of more than 4,100 megawatts (MW), Stanwell plays a key role in Queensland's electricity industry.

Stanwell has the capacity to supply more than 45 per cent of Queensland's peak electricity requirements through its coal, gas and hydro power stations.

Stanwell works closely with regulators at the national level (through the Australian Energy Market Operator, the Australian Energy Market Commission and the Australian Energy Regulator) and at state level (through the Queensland Competition Authority and the Department of Energy and Water Supply).



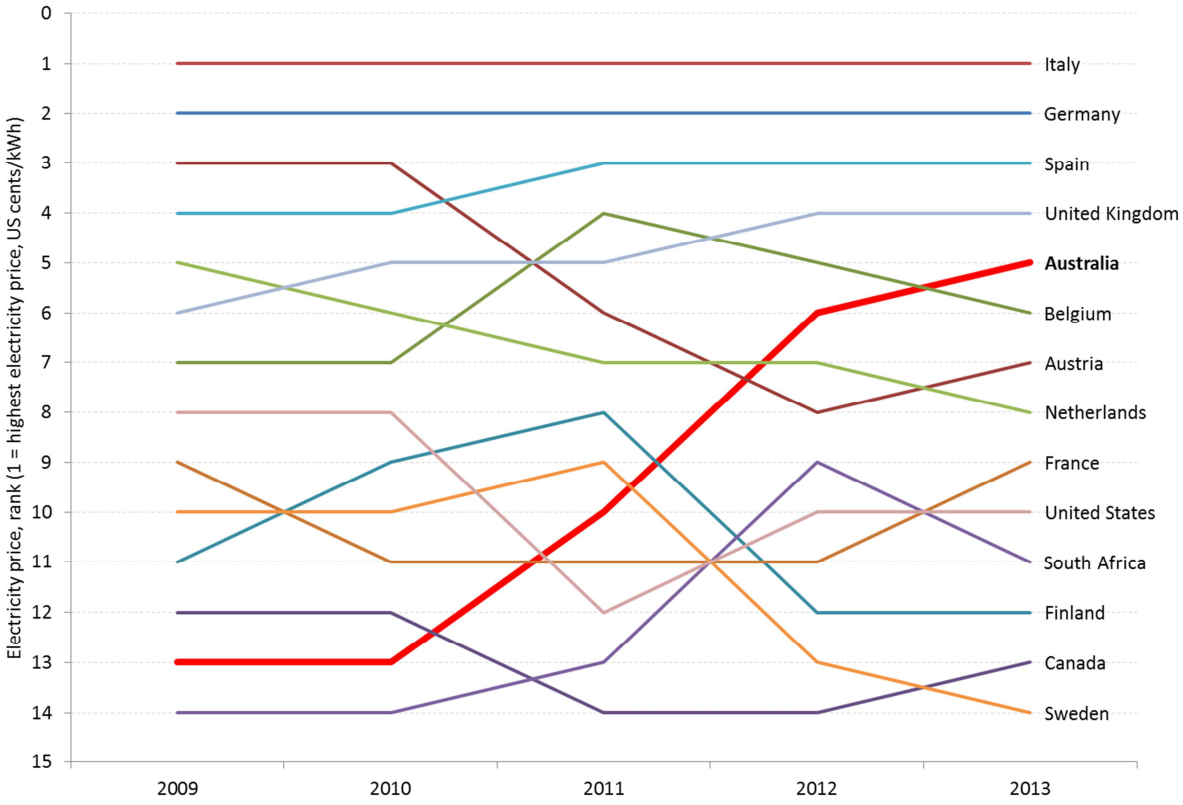
Source: Powerlink website

CONTEXT

Cost efficient, reliable electricity supply is one of the most important economic influences on industry, and a key determinant of economic prosperity.

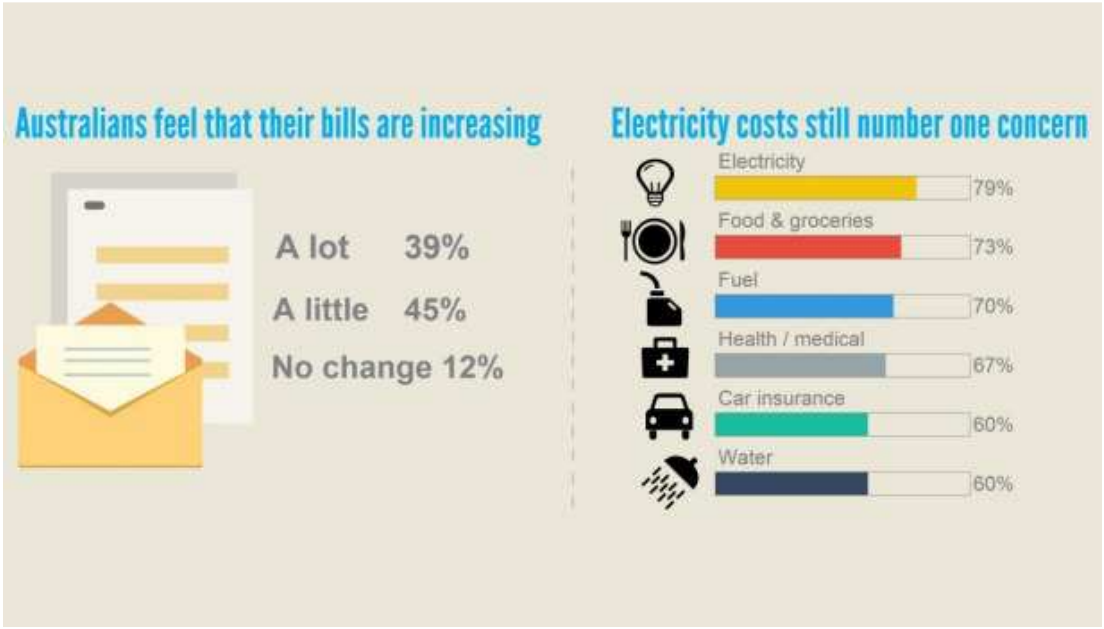
In recent years, electricity prices in Australia have increased considerably. The chart below shows the relative cost of retail electricity in a selection of countries. In the five year period from 2009 to 2013, Australia has slipped from being the second cheapest country in which to purchase electricity, to the fifth most expensive country. This increase in electricity price has predominantly impacted retail consumers, who have seen electricity costs for the period more than double. The loss of Australia's energy competitiveness has occurred despite the nation's abundance of low cost energy resources.

International electricity price comparison



Prices as at 1 July for the supply of 1,000kw with 450 hours use, excluding value-added taxes.
Electricity price in selected countries.
Source: NUS Consulting Group, International Electricity and Natural Gas Report and Price Survey

Choice's sixth quarterly Consumer Pulse survey (published in June 2015) found that rising electricity costs are still the number one cost-of-living concern for Australian households. The below figure outlines the results of the survey.



Source: Sydney Morning Herald 22 October 2015

Changing market

Throughout its history, the fundamentals of the electricity industry have remained comparatively unchanged: electricity was generated from central points in the grid (the majority of power stations were coal-fired), it travelled via a transmission network (in a single direction) to business and residential consumers who had little influence on the generation source of the electricity they purchased, or on the prices they paid.

In 2015, energy businesses throughout the world are facing unprecedented change. The drivers of change are global and their potential for influence reaches far beyond the energy industry. Increasing consumer choice and influence; an evolving energy mix; the exponential growth of digital technology; world leaders' support for carbon reduction and the resulting shift in global sentiment; and an anticipated step change in the demographics, skills and expectations of the workforce, will all radically affect the electricity industry over the next ten years.

These global change factors are reflected in the Queensland Government's target of achieving 50 per cent renewable energy by 2030. Stanwell acknowledges that the proportion of electricity from renewable sources will increase in coming years. The challenge for government and for the energy sector is to ensure the transition process is economically viable for Queensland; that the price of electricity is not artificially inflated or subsidised, and that the State continues to have an efficient, affordable and reliable supply of electricity.

Productivity in the electricity supply chain

2.1 Are there changes to the structure of the electricity supply chain and its regulation that might improve the efficient delivery of a reliable supply of electricity to customers?

The design of the National Electricity Market (NEM) and the principles of corporatisation under which Queensland's government owned generators operate already ensure the efficient and reliable delivery of electricity to customers.

Continuing the current structure of the electricity supply chain, and allowing the NEM to operate as a pure, competitive and transparent market where price is not unduly influenced by subsidies, is an effective way to ensure optimum efficiency and reliability.

The Queensland market is highly competitive; the five largest generation companies control approximately 89 per cent of installed capacity, placing it between Victoria (83 per cent) and NSW (96 per cent). In the retail sector, there are 27 licensed retailers, along with the state owned Ergon Energy. Notably, the Queensland market is less vertically integrated than other NEM regions.

The key principles of corporatisation for the government owned generators mandate that they must set clear performance targets, operate commercially (and on equal terms with private sector operators) to achieve those targets and that they must be enabled to operate autonomously from shareholders under the guidance of their independent Boards.

These principles imply that the generators must manage assets to meet consumer demand, they must operate efficiently in order to fulfil performance targets and they must achieve a long run marginal cost which enables them to compete within the market.

2.12 What are the potential benefits and risks of emerging technologies for the electricity networks in terms of electricity prices and supply chain productivity?

There are a number of emerging technologies which are having (or are likely to have) significant impact on the electricity networks. These include:

- electric vehicles;
- energy storage systems (both on the network and in customers' premises);
- greater connection of customer solar PV systems;
- wind generation; and
- smart meters and digital technology.

While Stanwell supports innovation and cost minimisation technologies, we consider that care must be taken to ensure that such developments do not dilute or circumvent market design and protections. In particular, monopoly network businesses should not be able to use their regulated funds in contestable markets.

Electric vehicles

The advent of electric vehicles has the potential to deliver environmental, social and economic benefits. However, the success of this technology will depend on its ability to integrate with the existing electricity network.

In particular, it will depend on the ability to charge electric vehicles at a variety of locations and at varying times of the day.

It is estimated that an average electric vehicle recharge load would increase annual household electricity consumption by 50 per cent[2]. Uptake of electric vehicles is also likely to reduce emission levels in and around major population centres.

This increase in load could potentially offset any reduction in grid demand due to the uptake of solar and increased energy efficiency measures. The result would be improved utilisation of the State's electricity assets and a more efficient supply chain.

The network risk is that large numbers of electric vehicles will be recharged during peak demand (5pm to 7pm). This would have a significant impact on the networks, potentially creating a requirement to further invest in infrastructure to meet this peak usage.

Given this risk, it is important to encourage electric vehicles being charged at times which minimise adverse network impacts, through initiatives such as cost reflective tariffs, smart meters and smart controllers, and through the strategic placement of charging infrastructure.

Energy storage systems

While battery storage technologies are not yet a commercially viable proposition for consumers at the household level[3], Stanwell expects that significant private investment will continue and a suitably priced storage solution will be available within the next decade. This will also lead to advances in grid level storage.

Stanwell notes that there are projects underway to develop battery based network solutions which allow traditional network augmentations to be delayed or cancelled without affecting service to customers (for example, Ergon Energy's Grid Utility Storage Solution). These batteries would charge during non-peak periods (or periods of high renewable generation) and discharge during peak periods (or periods of low renewable generation).

Transmission and generation businesses have traditionally been ringfenced (i.e. they are required to separate their regulated monopoly activities from the rest of their business) and arrangements like these need to be carefully set up to ensure that regulated monopoly businesses such as Network Service Providers (NSPs) are not subverting or being inappropriately exposed to competitive markets by becoming a "hidden" generator. If an NSP is earning the wholesale price for the discharge of its batteries then the NSP has an incentive to discharge during high prices and compete with generators as opposed to discharging during periods where it would be beneficial to network operation and investment. Such activity by NSPs would decrease transparency in the wholesale market to the detriment of participants, regulators and ultimately consumers.

Moving to a cost reflective network pricing structure (appropriately reflected in retail tariffs) will be critical to ensuring that storage technology deployment is efficient when it becomes economically viable.

Greater connection of customer solar PV systems

Stanwell acknowledges the benefits of solar PV for customers in terms of reducing power bills under current arrangements. PV installation rates in Queensland are among the highest in the world, with Energex reporting more than one in four detached homes now have solar PV, up from a near-zero base only five years ago. In Energex's network area, installation rates have been stable at approximately 2,000 systems per month for the past few years.

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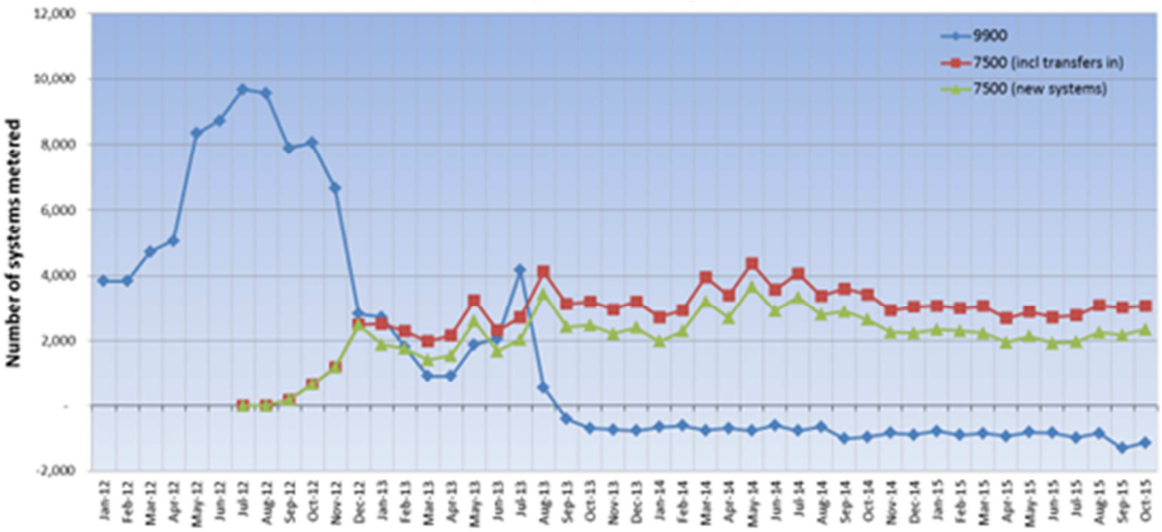
[2] Internal Stanwell modelling

[3] *Household batteries still five years from making financial sense for Australian homes,* Tom Arup, The Age, Melbourne, 16 November 2015.
http://www.theage.com.au/environment/household-batteries-still-five-years-from-making-financial-sense-for-australian-homes-20151113-gkyi8r#ixzz3rbX6XeM8

Solar Bonus Scheme
Number of metered systems – Change by month



Source: Energex

This indicates that there is a sustainable pipeline of work despite significant changes to solar PV subsidies by both state and federal government during that period.

Increasingly, new installations are being driven by innovation by installers which is likely to sustain or increase the current uptake rate. Solar lease and Power Purchase Agreement (PPA) offers with zero up front cost and below grid-parity consumption charges are likely to overcome the barriers historically faced by low income households and rental properties.

Any further subsidy to increase uptake rates above those supported by the market creates the risk of a boom-bust cycle. For example, to meet the Queensland Government's aspirational target of one million systems by 2020, the monthly uptake rate would need to increase from the current 3,000 per month[4] to more than 8,000 per month. However, at the end of the scheme in 2020 the market would be approaching saturation[5], providing limited scope for sustainable businesses beyond that point.

Stanwell notes the current Queensland Productivity Commission review into the appropriate level for a solar Feed in Tariff (FiT). Stanwell encourages the Queensland Productivity Commission to ensure that the review into a fair price for solar considers the numerous government and regulatory schemes affecting wholesale and retail markets (renewable energy target, energy efficiency, demand management incentive scheme, etc).

Rooftop solar reduces the total amount of electricity over which network costs are shared, driving up unit charges. However, solar PV is having little effect on reducing summer peak demand. Even the significant uptake of solar PV as noted above, has not been sufficient to defer network investment, and has had the contrary outcome of requiring investment in line augmentation to support solar installation. A recent Energy Supply Association of Australia (esaa) study[6] noted that the more solar being exported on a part of a network, the more likely it is to add costs and the less likely to avoid costs. These costs are ultimately funded by all customers (and disproportionately by non-solar households) through their electricity bills[7].

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4 Approximate combined Energex and Ergon installation rate

5 A recent Morgan Stanley survey indicated that of approximately two million Queensland households, less than 80% had suitable roof space and almost 40 per cent would not consider installing a solar and storage system

6 esaa study – Leader in rooftop solar: what are the policy implications?

7 Simshauser P and Downer D (2014), *On the inequity of flat-rate electricity tariffs*

Increase in wind generation

While Queensland has only 0.3 per cent of the NEM's grid-connected wind generation, this is likely to increase as a result of federal and state renewable energy targets. Queensland currently has 11 per cent (or more than 1300 MW) of the NEM's new, publicly announced wind projects.

State	Installed capacity (MW)	Share (%)
QLD	12.0	0.3%
NSW	666.0	17.7%
VIC	1,229.6	32.8%
SA	1,472.9	39.2%
TAS	372.8	9.9%
NEM	3,753.2	100.0%

Source: AEMO Generation Information, 26 October 2015 (ESOO update)

Stanwell acknowledges that wind generation can aid in decarbonising the electricity supply. However, the intermittent nature of wind generation has a significant impact on the electricity network.

Stanwell notes the recent AEMO study into the impact of high levels of renewable generation on grid stability, particularly wind and solar PV in South Australia.

The study highlighted that the Heywood interconnector is becoming increasingly critical for the security of the South Australian energy system. It serves the dual purpose of providing access to low cost energy from Victoria's brown coal generators, as well as providing a critical link to the system stability and ancillary services provided by large baseload generation. As this generation is online all year round, it will be increasingly relied upon to provide the critical frequency and ancillary market services that are required to maintain the stability of the South Australian network.

A common wind stream fuels wind farms in both South Australia and Victoria, so wind generation in these two southern states is highly correlated. This correlation of output is important because, when the wind is not blowing, the wind farms in both states are inactive at the same time, so the impact on the electricity network and market is significant. As a result of consistently high wind speeds in South Australia and Victoria, wind farm investment has historically been concentrated in this area. However, the 'common wind stream effect' means the network requires greater levels of redundancy than would occur with more diverse generation.

In Queensland and New South Wales, wind generation sites are geographically dispersed and relatively uncorrelated. Consequently, the potential impact of an increase in this intermittent generation on the network, in terms of grid stability and ensuring a reliable supply of energy for consumers, may be reduced. As a result, Queensland and New South Wales projects may have a significant advantage going forward, albeit at lower output and lower capacity factors.

Smart meters and the 'internet of things'

The roll out of smart meters, smart homes, digital devices equipped with smart energy management capability and the 'internet of things' (where appliances are embedded with electronics, software, sensors, and network connectivity, which enable them to collect and exchange data) will empower Australians to package the energy they consume in ways which meet their own financial, lifestyle and ethical requirements.

This should assist in managing peak demand and result in a reduction (or deferral) in network investment required to support peak usage. However, depending on the manner in which smart meters are rolled out and paid for, this may increase customer electricity bills.

In this respect, Stanwell welcomes the Reform Agenda Implementation Plan arising from the July 2015 COAG meeting which supports the competitive market-led rollout of smart meters. This path appears likely to avoid the issues observed during the mandatory rollout in Victoria in recent years.

2.13 What is the role of economic regulation of networks in the face of increasing competition from non-network services and products?

As noted above in 2.12, transmission and generation businesses have traditionally been ring fenced (i.e. they are required to separate their regulated monopoly activities from the rest of their business). Stanwell understands that the Australian Energy Regulator (AER) is currently working on updates to these guidelines, to be released late in 2016.

The regulatory framework needs to ensure regulated monopoly businesses such as Network Service Providers (NSPs) are not subverting or being inappropriately exposed to competitive markets by becoming a "hidden" generator. If the NSP is earning the wholesale price for the discharge of its batteries, then the NSP has an incentive to discharge during high prices and compete with generators as opposed to discharging during periods where it would be beneficial to network operation and investment. Such activity by NSPs would be likely to decrease transparency in the wholesale market to the detriment of participants, regulators and ultimately consumers.

Exposure to highly volatile revenues and costs may also affect the investment profile of these businesses as the increased risk would require increased returns, coming at a cost to consumers. Care must be taken to ensure that such developments do not dilute or circumvent market design and protections.

The recent revenue determination by the Australian Energy Regulator for Ergon and Energex will allow a sustainable return for both businesses and prevent further distortion of the investment conditions facing consumers – that is, by avoiding unnecessary increased in the price of grid sourced electricity it reduces the economic rationale for investment in embedded generation which is economically rational for the individual but reduces overall productivity.

2.14 How should the costs associated with implementing new technologies be shared between the businesses and consumers?

The costs associated with any new technology need to be transparent and based on ‘beneficiary pays’ principles.

Any support for new technology, regardless of its form, needs to be clearly articulated and transparently implemented. This will encourage the development of a more efficient electricity supply network and promote the most efficient use of technology.

2.16 What are the barriers to improving consumer interest and participation in the electricity market?

Two of the key factors which influence consumer interest and participation in the electricity market are the cost of electricity and electrical products, and the accessibility of relevant information. Where governments mandate or incentivise specific actions on the part of consumers; there is a significant risk that the implementation is inefficient. For example, the mandatory smart meter roll-out in Victoria came at significant cost to market participants and consumers. Conversely, government actions to ensure the availability of information or prevent known inefficient behaviour can result in efficient and sustainable benefits to both consumers the broader economy.

Minimum Energy Performance Standards (MEPS) specify minimum levels of energy performance for appliances, lighting and electrical equipment in order for them to be offered for sale or used for commercial purposes. Lightbulbs, air conditioners and television sets have all been the subject of MEPS in Australia in recent years, resulting in efficiencies driven by regulation, rather than by consumer decision making. While Stanwell generally supports market based initiatives, MEPS is an example of efficient regulation in that it is forward looking (applying to new purchases), focusses production resources on desirable outcomes and removes inefficient options. Continuing, and gradually expanding, MEPS is likely to provide significant ongoing efficiency benefits.

In terms of the provision of information to consumers, there is currently no single, objective, user-friendly portal which provides consumers with information about the quality and cost of electrical appliances; the process of sourcing, purchasing, and installing small scale renewables such as solar voltaic rooftop panels; and the process for researching and coordinating household tariffs.

The Australian Energy Regulator, the Australian Renewable Energy Agency and the Clean Energy Regulator all have web sites which go some way to covering this brief, however, none is populated with the breadth and quality of information required, in a format which is easily understood by ‘mum and dad’ consumers.

2.20 What would be a better alternative for funding the Solar Bonus Scheme?

Stanwell supports removing funding of the premium Solar Bonus Scheme from retail bills, in order to reduce the cross subsidies being paid by consumers and to allow retail costs to be more closely aligned to the cost of grid sourced electricity.

The Queensland Competition Authority has determined that the Solar Bonus Scheme will comprise eight per cent of the average residential bill in 2015/16, while the AER has approved the recovery of more than $2 billion of cost from the scheme between 2015 and 2020. These costs are currently “hidden” in the network component of retail bills. They also increase retail components (i.e. margin and headroom), which are determined as percentages of the total bill. Removing this distortion from retail bills would provide significant relief to consumers and improve cost reflectivity.

As noted in 2.12, Queensland’s installation rates for rooftop PV systems are among the highest in the world, with Energex reporting more than one in four detached homes now have solar PV, up from a near-zero base only five years ago. At approximately 2,000 systems per month in Energex’s region, installation rates have been stable for the past few years. This indicates that there is a sustainable pipeline of work despite significant changes to solar PV subsidies by both state and federal government during that period. Based on these figures, there appears to be no specific rationale to increase solar PV uptake rates through the introduction of any further subsidy.

Current uptake rates are being driven by installer innovation, and this seems set to continue. Solar lease and Power Purchase Agreement (PPA) offers with zero up front cost and below grid-parity consumption charges are likely to overcome the barriers historically faced by low income households and rental properties. Further reduction in these barriers may be possible through the cooperation of service providers and entities such as the Residential Tenancy Authority or real estate agents in developing standard form documentation relating to such installations.

Any further subsidy aimed at increasing uptake rates beyond those supported by the market, risks creating a boom-bust cycle. For example, to meet the Queensland Government's aspirational target of one million systems by 2020, monthly uptake would need to increase from the current rate to more than 8,000 per month. At the scheme's conclusion in 2020, the market would be approaching saturation[8], providing limited scope for sustainable businesses beyond that point.

Such a policy also risks creating further oversupply and distorting the market despite the Australian Energy Market Operator (AEMO) forecasting that no new build generation plant is required for Queensland until at least the early 2020s.

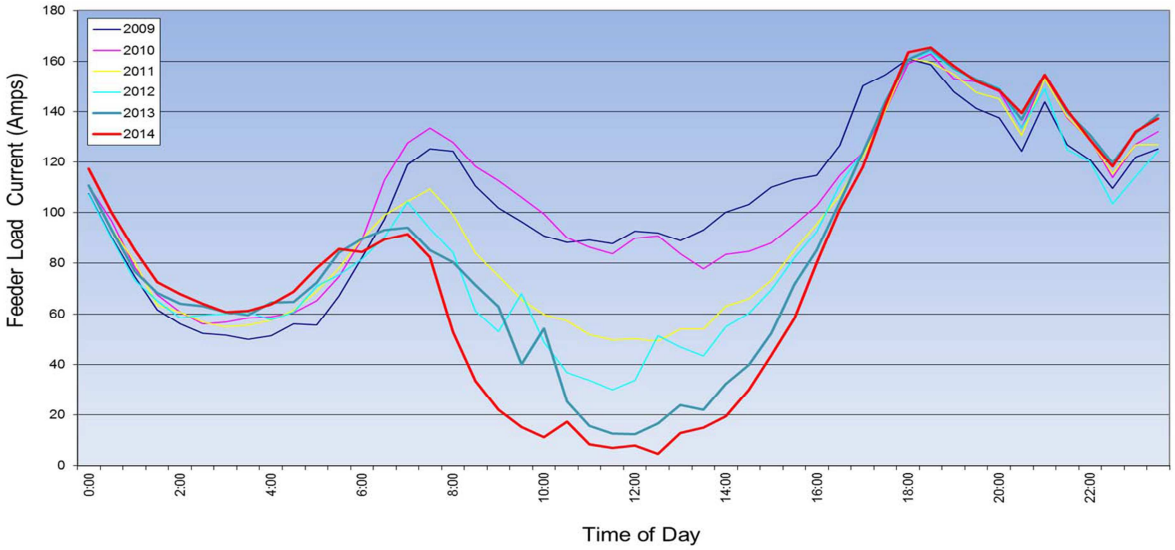
Stanwell does not support the further subsidisation of solar PV as it is an established technology with a sustainable business model. However, in the event that subsidies are offered, their cost should not be incorporated in network or retail prices, because this hides the true cost of the subsidy from the broader customer base. If subsidies are to be paid, they should appear as a separate line on the bill or be provided directly to consumers in another manner.

2.21 What are the likely or potential impacts of new technology on the productivity of the electricity supply sector and its component parts, and electricity prices?

For the purposes of this response, Stanwell is characterising batteries, as well as wind and large scale solar generation as 'new technology'.

In June 2015, rooftop PV systems accounted for 1,328 MW of capacity in Queensland. However, these systems have had little impact on peak network demand, as reflected in the graph below.

Feeder 'Currimundi 3A'
Impacts of solar PV



Source: Energex

The government has set a target of achieving 50 per cent renewables by 2030, and having one million Queensland rooftops fitted with solar panels by 2020.

[8] A recent Morgan Stanley survey indicated that of approximately two million Queensland households, less than 80 per cent had suitable roof space and almost 40 per cent would not consider installing a solar and storage system.

If consumers' purchase of PV systems is heavily subsidised by government, the uptake is likely to exceed the levels of adoption required to support individual households' requirements. This will place further pressure on the 'poles and wires' (which must be upgraded in order for electricity generated by households to enter the network), require households that do not have solar PV installed to pay costs incurred by those which do, and spread the necessary cost of baseload generation among a decreasing number of electricity users.

For most consumers it is not yet commercially viable to use onsite battery storage in order to disconnect from the grid. However, battery developers are currently implementing marketing campaigns, encouraging consumers to install batteries in order to save their solar power for use at peak times (while remaining connected to the grid).

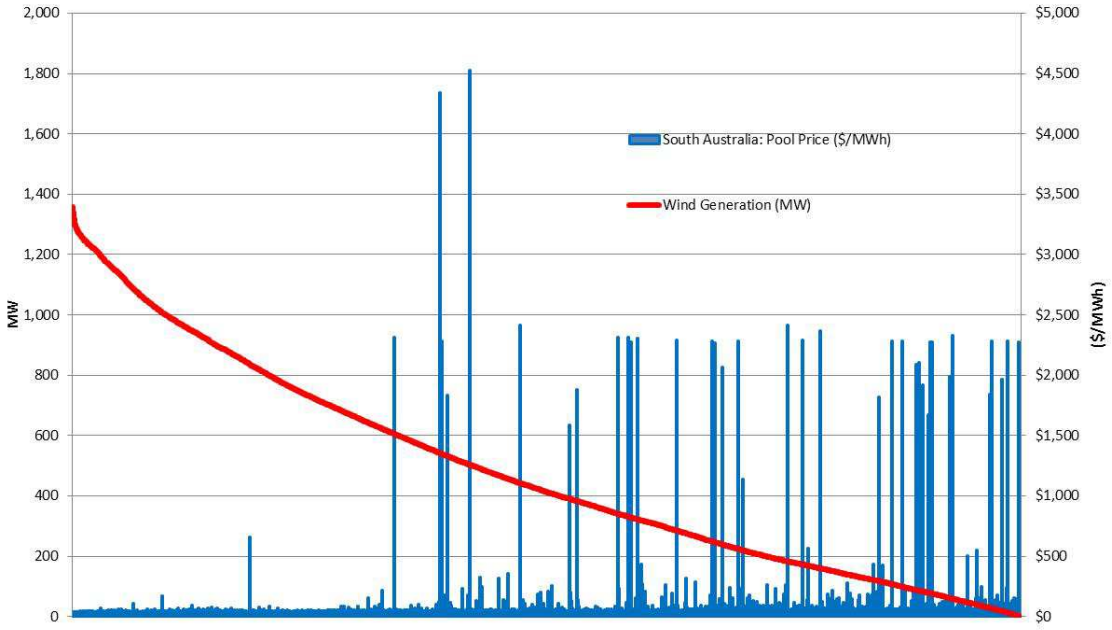
If implemented well, domestic storage systems may reduce the negative impact of high PV uptake (described above) by effectively "moving" excess generation from oversupplied to peak periods. If implemented poorly however, such systems may give rise to further inefficiencies and under-utilisation of assets. It will be critical to ensure that regulations (along with any subsidy schemes which are implemented) are designed to avoid such adverse consequences.

As outlined in 2.12, South Australia provides a useful case study of the effect of large scale renewables on the electricity supply sector, and on electricity prices. Sourcing approximately 39 per cent of its generation from renewable sources (especially wind and solar), South Australia is experiencing increasingly volatile wholesale prices, and an increased reliance on the State's interconnector with Victoria. This is highlighted by the blackouts experienced on 1 November 2015, when 110,000 South Australian consumers lost power as a result of the loss of the Vic-SA interconnector. Had this incident occurred at peak times rather than late on a Sunday night, the impact would have been far greater.

When wind generation is high, wholesale prices are low. However, when the wind is not blowing, baseload coal generation ramps up to meet demand. At these times, wholesale costs vary according to demand levels and generators' availability, and constraints on the interconnector.

The following graph (esaa analysis of AEMO market data 2014/15) is an analysis of wind output in South Australia. It highlights that the frequency of high price events increases when wind generation is low and conversely, decreases when there is ample supply of wind generation.

Spot prices and wind output in South Australia



Alinta has announced it intends to close its Northern and Playford B power stations by the end of March 2016 while AGL has indicated the potential withdrawal of Torrens A in 2017. According to a recent report by the Australian Energy Market Operator (AEMO), the closure of Alinta's power stations may result in supply shortfalls 'when high demand coincides with low wind generation, plant outages or low levels of imports'.

Each of the renewable technologies discussed here requires significant 'backup' from traditional scheduled generators, which have historically been the primary electricity source in Eastern Australia. Recent experience indicates that requiring such a primary system to serve 'backup duty' is likely to lead to a significant increase in the unit cost of power, with little overall benefit to consumers.

2.22 How could existing regulatory and institutional arrangements in the Queensland electricity sector support the efficient adoption of emerging technology across the electricity supply chain?

As new energy technology becomes commercially viable, market forces will ensure that those technologies which advantage consumers are adopted. Consumers should not be financially incentivised by government to adopt technologies which are already affordable, advantageous and attractive. Similarly, electricity users who cannot afford to adopt new technologies should not be forced to subsidise the costs of those who can as currently occurs through the Solar Bonus Scheme and white certificate schemes operating in other jurisdictions.

As noted throughout this submission, the adoption of cost reflective tariffs and the provision of comprehensive, easily understood information regarding consumption will significantly aid the efficient adoption of emerging technology.

2.23 What are the potential costs and benefits to Queensland as a result of national harmonisation of energy policy and laws in terms of electricity prices or supply chain productivity?

National harmonisation of energy policy (particularly in those states covered by the NEM) creates certainty and reduces costs to business. It also increases the competitiveness of the retail market as retailers are able to enter each state, without negotiating state-by-state licensing regimes.

On 1 July 2015, Queensland adopted the COAG-initiated National Energy Customer Framework (NECF); a national retailer licensing and customer protection framework for the retail of electricity and gas to residential and small business energy customers.

To date, the NECF (for residential and small business electricity customers) has been adopted by the Australian Capital Territory, Tasmania, South Australia, New South Wales and Queensland. However, it has not yet been adopted by Victoria. Stanwell's experience is that the process of retailing in Victoria is more complex and costly than in those states which have adopted the framework.

Similarly, state level derogations from national arrangements can mean that consumers are unable to benefit from national reforms. The recent (draft) determination by the AEMC allowing customers in embedded networks access to competitive retail markets will only produce benefits in some regions, with Queensland, Tasmania and the ACT requiring separate legislative changes to allow the rule to become effective.

2.3 What are the potential benefits and risks in the Queensland Government's renewable energy plans, including solar targets, for electricity sector productivity and electricity prices in the longer term?

Stanwell supports activities which sustainably grow the Queensland economy allowing both room and incentives for new investment.

The proposed state-based 50 per cent renewable energy target by 2030 needs to be very carefully designed to ensure it does not distort competition in the National Electricity Market (NEM), and lead to higher electricity costs for consumers and reduced value for the Queensland Government (via its government owned corporations).

Such a policy could ultimately result in the closure of existing state-owned generation plant and require significant new investment in large scale renewables. This would have a significant cost impact on Stanwell's shareholders, through loss of value on existing generation assets, and on consumers who would bear the costs for investment in large scale renewables

In implementing any state-based renewable energy target, the significant proportion of solar PV in Queensland should be taken into account. New incentives must also take into account the volume already subsidised by existing schemes (e.g. the Federal Government's Renewable Energy Target). Such a scheme should be funded the through the State budget to minimise market distortions and protect consumers from substantial increases in retail electricity costs.

The government managed GreenPower scheme offers a practical alternative to mandated state based renewable targets. Under the scheme, households and businesses can specify to their GreenPower participating retailer that a proportion of their electricity must be purchased from accredited renewable energy generators. Importantly, the scheme does not impose costs on households that are unable or unwilling to participate. It is also additional to mandated schemes (such as the RET).

Stanwell would encourage the Queensland Government to adopt the GreenPower scheme and to work through COAG to increase its visibility and ease of use. Incorporating the GreenPower scheme within the remit of the Clean Energy Regulator, for instance, would create significant synergies.

Stanwell's response to question 2.20 also deals with the potential benefits and risks in relation to the Queensland Government's aspirational target of having one million households with solar PV by 2030.

2.4 What objectives do these plans and targets best support, and are there alternative levers or methods that might be considered?

Subsidies for renewable energy sources have been the catalyst for establishing renewable energy in Australia.

Appropriately-sized distributed generation (i.e. residential solar PV) can help achieve the Government's objective of reducing residential electricity bills and lowering network costs. However, poorly designed residential solar policy can lead to increased network costs and cross-subsidisation (i.e. consumers without solar PV subsiding network costs for consumers with solar PV).

Government should be cautious in trying to assist the transition to a renewable energy future as the market works best when there is minimal regulation and subsidies.

For example, the solar industry in Queensland has been growing for the past year with no state-based subsidies and this growth is expected to accelerate with energy companies offering customers solar PV with no upfront costs.

The re-introduction of a state-based residential solar subsidy would distort the market, leading to an erosion in returns and business values across the energy GOCs. This will diminish those businesses' ability to pay a dividend to the State Government and contribute to debt reduction.

The Energy Supply Association of Australia (esaa) has consistently called on state governments to minimise the number and impact of mandatory state based schemes which recover costs through retail electricity bills. Stanwell supports the esaa position and believes the transition to a renewable energy dominated market should be driven by market forces. This will allow incumbent generators that are not well positioned to provide the 50 per cent of generation required to complement the government's targeted 50 per cent renewables, to make a timely withdrawal from the market.

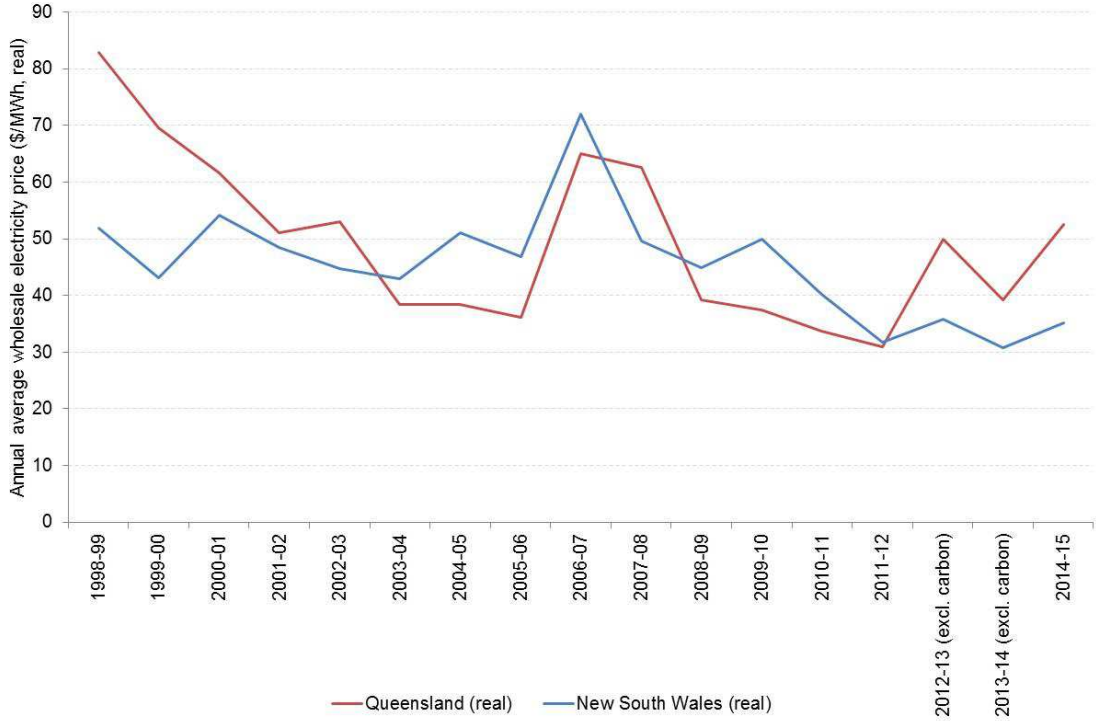
2.5 What factors are influencing high wholesale prices in Queensland and do these represent systemic or transient market issues?

For much of the last decade, conditions for generators in Queensland have been extremely challenging due to an oversupply of generation, low wholesale prices, competition from vertically integrated companies, and growth in non-market visible generation such as solar panels.

These challenges are reflected in the graph below, which shows the realised wholesale energy price for the past 15 years (adjusted for carbon). In real terms, the price achieved in 2014/15 is lower than 2000/01.

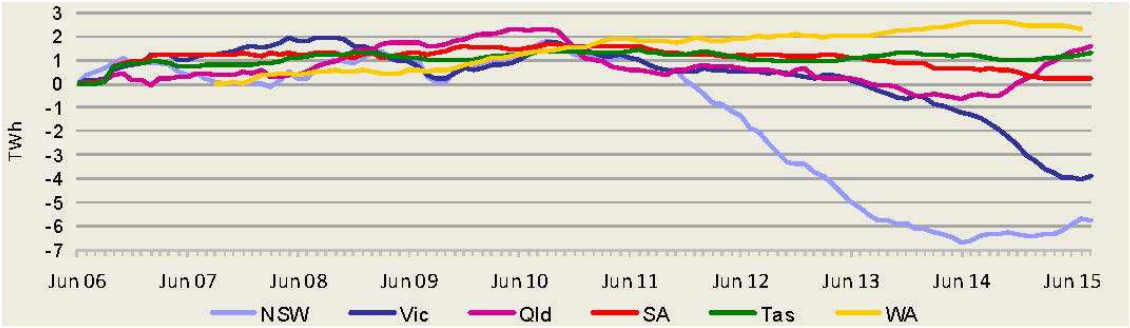
Prices are always different between states reflecting their individual circumstances. The current situation is no exception.

Realised wholesale energy prices (Queensland and New South Wales)



The reason prices in Queensland have been above New South Wales in recent years is that Queensland is experiencing demand growth while New South Wales demand has fallen sharply.

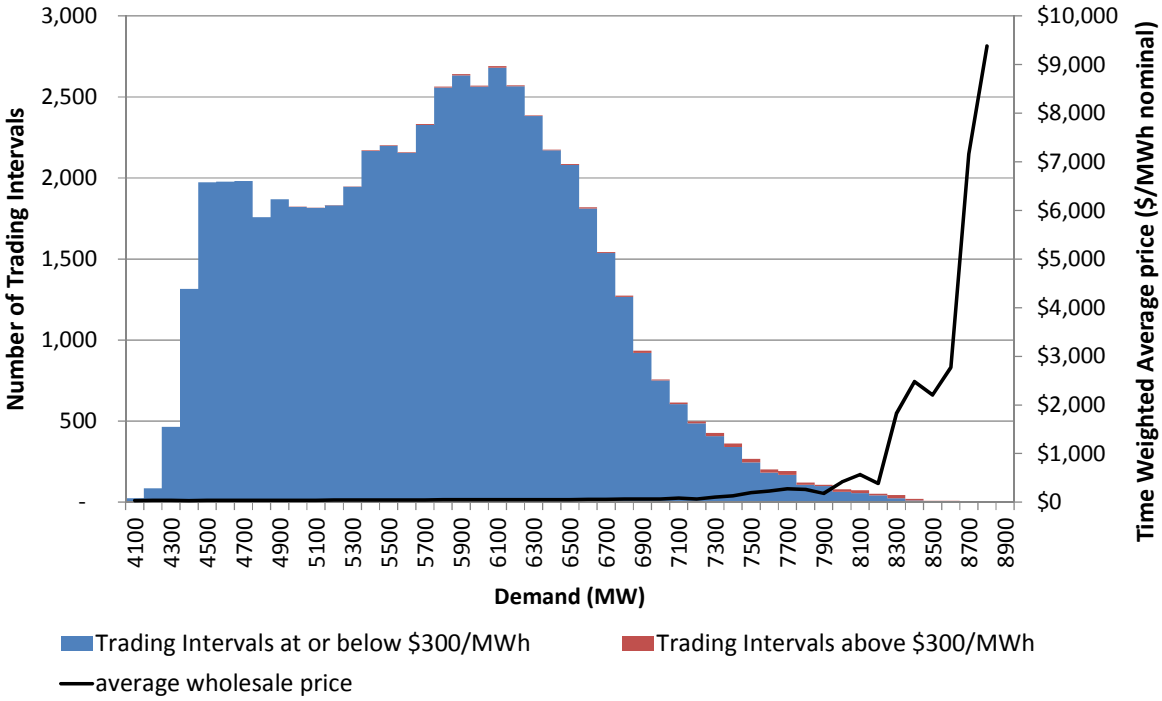
Absolute changes in electricity demand by State



Source: Pitt and Sherry

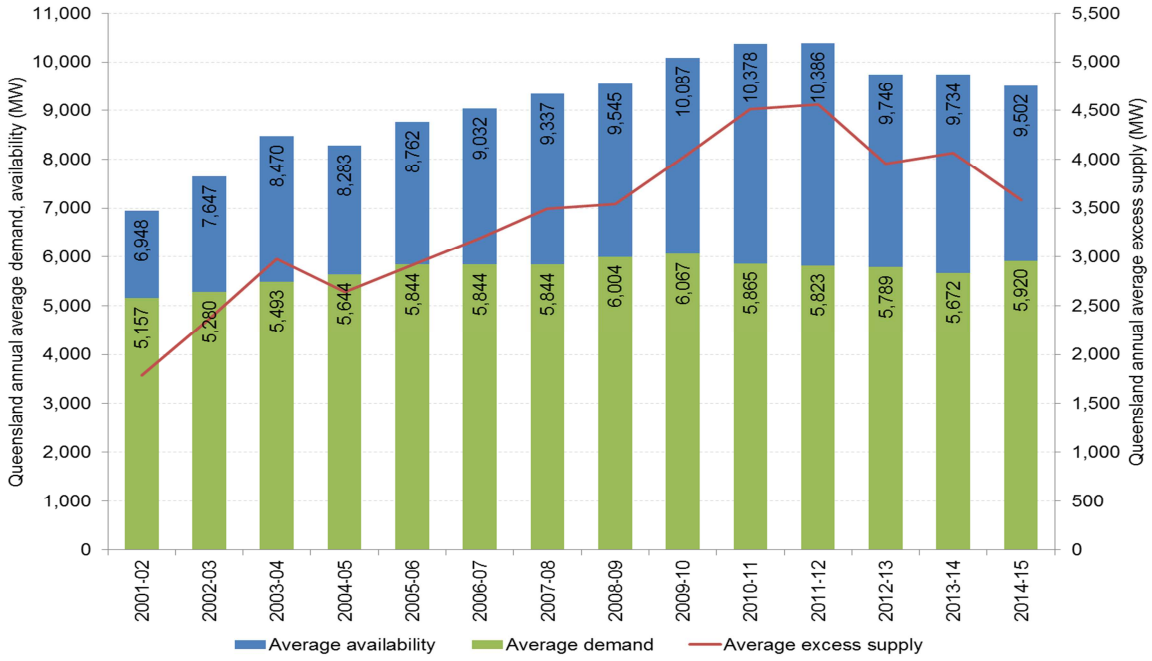
In Queensland, high prices have been strongly linked to high demand as shown below. While the vast majority of demands are between about 4500 MW and about 7000 MW, the vast majority of high prices occur above 7000 MW, and particularly above 8000 MW.

Queensland 2012 to Quarter 1 2015

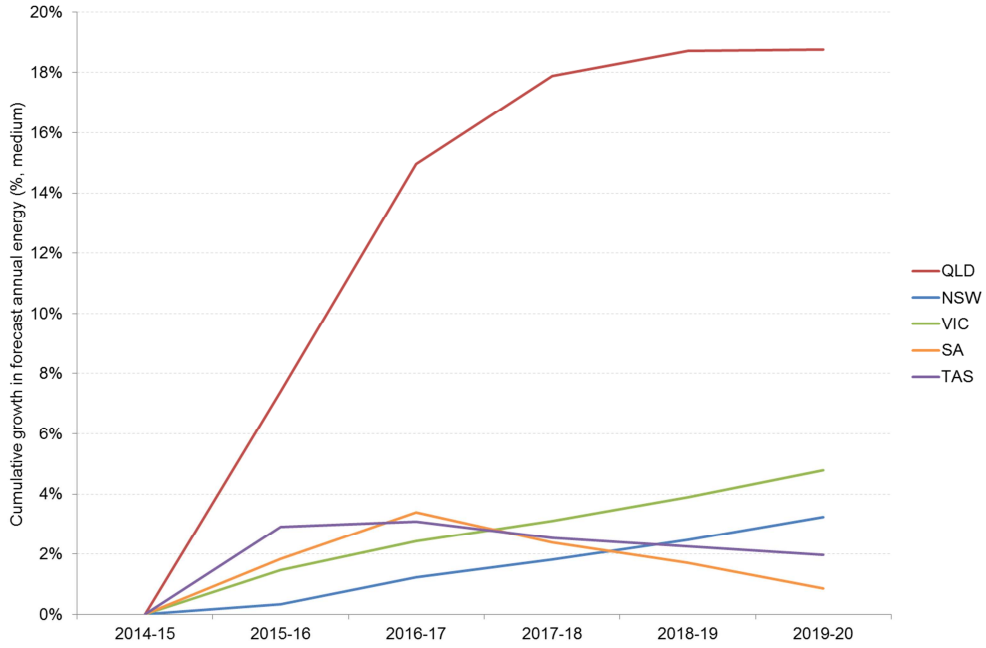


Demand for electricity in Queensland is predicted to increase by nearly 15 per cent between July 2014 and June 2018. The increase in demand is being driven by the commissioning and operation of Queensland's liquid natural gas (LNG) plants. Additionally, as these LNG plants begin to export, gas-fired generation will no longer have access to the large volume of low cost 'ramp gas' associated with the emerging LNG industry. As balance between supply and demand tightens, particularly during summer, wholesale prices will increase to reflect the increase in demand.

Historical demand and supply in Queensland



AEMO energy demand growth by state



AEMO annually updates its Electricity Statement of Opportunity (ESOO) which provides a broad analysis of opportunities for generation and demand-side investment in the National Electricity Market.

Due to the current 40 per cent oversupply in the Queensland wholesale electricity market, the 2015 Electricity Statement of Opportunities outlined that no new-build generation plant is required for Queensland until at least the early 2020s. The introduction of new, large scale renewable capacity into the Queensland market will therefore necessitate the orderly withdrawal of some existing plant from the market.

2.6 Are there any issues associated with the existing level of competition in Queensland's electricity generation sector, and what are the potential impacts on the wholesale electricity market?

As noted in 2.1, the generation sector of the Queensland energy market is highly competitive; CS Energy and Stanwell operate approximately 34 per cent and 28 per cent respectively of installed capacity in Queensland.

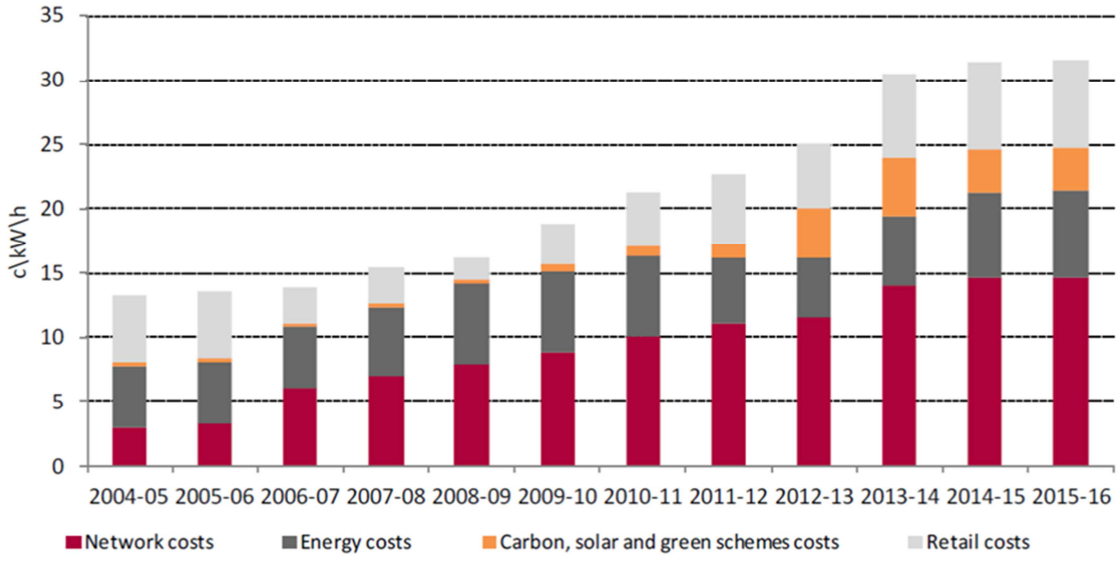
The existing level of market concentration in the Queensland market is very similar to NSW and slightly above the Victorian wholesale energy markets as demonstrated by the table below.

Queensland		New South Wales		Victoria	
Operator	**Market share (%)**	**Operator**	**Market share (%)**	**Operator**	**Market share (%)**
CS Energy	34%	AGL Energy	31%	AGL Energy	26%
Stanwell	28%	Origin Energy	25%	GDF Suez	22%
InterGen (Australia)	12%	Snowy Hydro Ltd	19%	Snowy Hydro	18%
Origin Energy	10%	EnergyAustralia	12%	EnergyAustralia	13%
Arrow Energy	5%	Delta Electricity	9%	Origin Energy	5%

Source: AEMO Regional Generation Information, 31 July 2015.
Adjusted for announced closure/long term mothballing of Collinsville, Redbank, Wallerawang, announced medium term closure of Tarong unit 2 and Swanbank E, and 5 unit operation at Gladstone

As illustrated in the table below, wholesale electricity prices make up approximately 20 per cent of the retail price for residential consumers. This relatively small proportion has not increased significantly in many years. In fact, in real terms, wholesale electricity now accounts for a smaller proportion of residential power bills than it did in 2000. This confirms that competition in Queensland is sufficient to maintain downward pressure on wholesale prices.

Average Queensland annual Tariff 11 cost component breakdown (c/kWh, nominal)



Source: Department of Energy and Water Supply

2.8 What options are there to mitigate competition impacts associated with merging CS Energy and Stanwell, and maintain downward pressure on electricity pricing?

The structure of government owned corporations (GOC) is ultimately a matter for Government. That said, Stanwell believes that the best way to maintain downward pressure on electricity pricing is for the Queensland Government to use non-structural methods to achieve its policy objectives.

The key principles of corporatisation for the government owned generators mandate that they must set clear performance targets, operate commercially (and on equal terms with private sector operators) to achieve those targets, and that they must be enabled to operate autonomously from shareholders under the guidance of their independent Boards.

If the NEM is allowed to operate as a pure, competitive and transparent market and if the principles of corporatisation for the GOC generators are observed, then the generators must manage assets to meet consumer demand, they must operate efficiently in order to fulfil performance targets and they must achieve a long run marginal cost which enables them to compete within the market.

It is also important to note that the generation proportion of retail electricity bills has remained modest (refer to page 22), despite increases in retail electricity prices. However, broad political support for an increasing share of generation to be sourced from relatively high cost renewable energy has the potential to further increase retail prices in coming years, through the recovery of renewable subsidies. While introducing additional subsidised generation into an oversupplied market may suppress prices in the short term, the ultimate exit of non-subsidised generators will mean that this effect is nullified over the longer term. Such action leaves governments and consumers paying both subsidies and higher wholesale prices.

The Queensland Treasury Merger Working Group has been tasked with developing recommendations for the merger of the electricity Government Owned Corporations which will be considered by the Queensland Government. Stanwell has provided information regarding its operations to this Group and Stanwell senior management are also contributing through the Queensland Treasury established Merger Policy Consultation Group.

Regional Queensland

4.9 What are the potential benefits and costs of competition in regional Queensland?

The key benefit of competition in regional Queensland is that it should, in theory, lead to a reduction in electricity costs for consumers. This would support innovation and encourage industry growth in regional areas.

However, any subsidy arrangement (including direct transfer payments to identified customers in need of support) needs to be calculated transparently and be only for the benefit of its target stakeholders.

4.10 Why would a network-based CSO be the most effective way of supporting the UTP and promoting competition in regional Queensland?

A network based CSO would promote competition in regional Queensland as it would create a level playing field for all retailers and encourage innovation.

Any support for regional customers, regardless of form, needs to be clearly articulated and transparently implemented. This will encourage the development of a more efficient electricity supply network in regional Queensland. In addition, clear price signals will encourage the most economically efficient use of electricity.

As the CSO is designed to remove the discrepancy in network charges between Energex and Ergon, directing the CSO to a retailer is inefficient. A network based CSO will also allow a ready comparison of subsidised network cost to alternative forms of energy supply such as distributed generation or stand alone networks.

Customer participation and support in the electricity market

5.1 What are the barriers to improving consumer participation in the electricity market?

The primary barriers to improving consumer participation in the electricity market are lack of trust and a lack of readily available, easy to understand information.

Choice's sixth quarterly Consumer Pulse survey of 1,032 participants found that electricity retailers are the least trusted service provider in the country. This result warrants further investigation by energy companies to understand why this distrust is so prevalent in relation to what is typically considered an essential service.

Full Retail Contestability (FRC) commenced in south east Queensland in July 2007, and the number of energy retailers competing in south east Queensland is now increasing. However, searching for a new retailer through a variety of energy search engines can be complex for consumers.

For example, the AER offers consumers a search engine (www.energymadeeasy.gov.au), which can offer consumers multiple offers at apparently identical prices. Considering electricity is a product which offers no differentiation to the end user, the level of complexity in choosing a retailer can act as a deterrent to consumers, with the end result that many consumers stay with their default retailer.

Stanwell believes there is a role for a body to offer a more streamlined approach to identifying consumers' electricity needs and matching those needs with appropriate products.

The adoption of cost reflective tariffs and the provision of comprehensive, easily understood information regarding consumption will significantly aid the participation of consumers in the market.

5.15 What are the benefits and risks in the Queensland Government providing incentives for households, businesses and industries to become more energy efficient or manage their peak levels of demand, including implementing energy efficiency standards for sectors within its jurisdictional authority?

There is merit in energy efficiency schemes which are based on:

- the regulation of minimum energy performance standards for electrical products, as well as energy efficiency standards for new buildings;
- the provision of simple, comprehensive information about the energy efficiency of electrical products; and
- a system of efficient, cost reflective network tariffs.

However, energy efficiency schemes which provide consumers with financial reward for purchasing products or adopting behaviours, which are commercially sensible (and which were likely to achieve market dominance regardless of any subsidy being offered) detract from the efficient operation of the electricity market and penalise customers who do not have the financial resources to purchase new products.

In recent years, the certificate based energy efficiency schemes in Victoria, South Australia, the Australian Capital Territory and New South Wales have all predominantly subsidised stand-by power controllers (SPCs) and energy efficient lighting. These products are low cost, widely sold and do not have split-incentive barriers. It is likely that both would have been adopted by consumers had subsidies not been in place. Expenditure on such devices by governments (or forced upon other consumers) is inefficient in any environment, but is particularly impractical in an environment of constrained budgets.

Minimum Energy Performance Standards (MEPS) specify minimum levels of energy performance for appliances, lighting and electrical equipment in order for them to be offered for sale or used for commercial purposes. Lightbulbs, air conditioners and television sets have all been the subject of MEPS in Australia over recent years, resulting in efficiencies driven by regulation, rather than by consumer decision making. While Stanwell generally supports market based initiatives, MEPS is an example of efficient regulation in that it is forward looking (applying to new purchases), focusses production resources on desirable outcomes and removes inefficient options. Continuing, and gradually expanding, MEPS is likely to provide significant ongoing efficiency benefits.

Queenslanders' own need to manage household budgets will motivate them to adopt emerging technology in order to benefit from cost reflective network tariffs. This technology will include electric vehicles, smart meters, smart controllers and household battery storage systems. There is no requirement for the government to incentivise the adoption of products which already provide their own financial incentive for purchase.