17 September 2012

Committee Secretary
Senate Select Committee on Electricity Prices
PO Box 6100
Parliament House
Canberra ACT 2600
Australia
Via email to: electricityprices.sen@aph.gov.au

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Re: Submission to the Senate Select Committee on Electricity Prices

Infigen Energy appreciates the opportunity to make a submission to the Senate Select Committee on Electricity Prices.

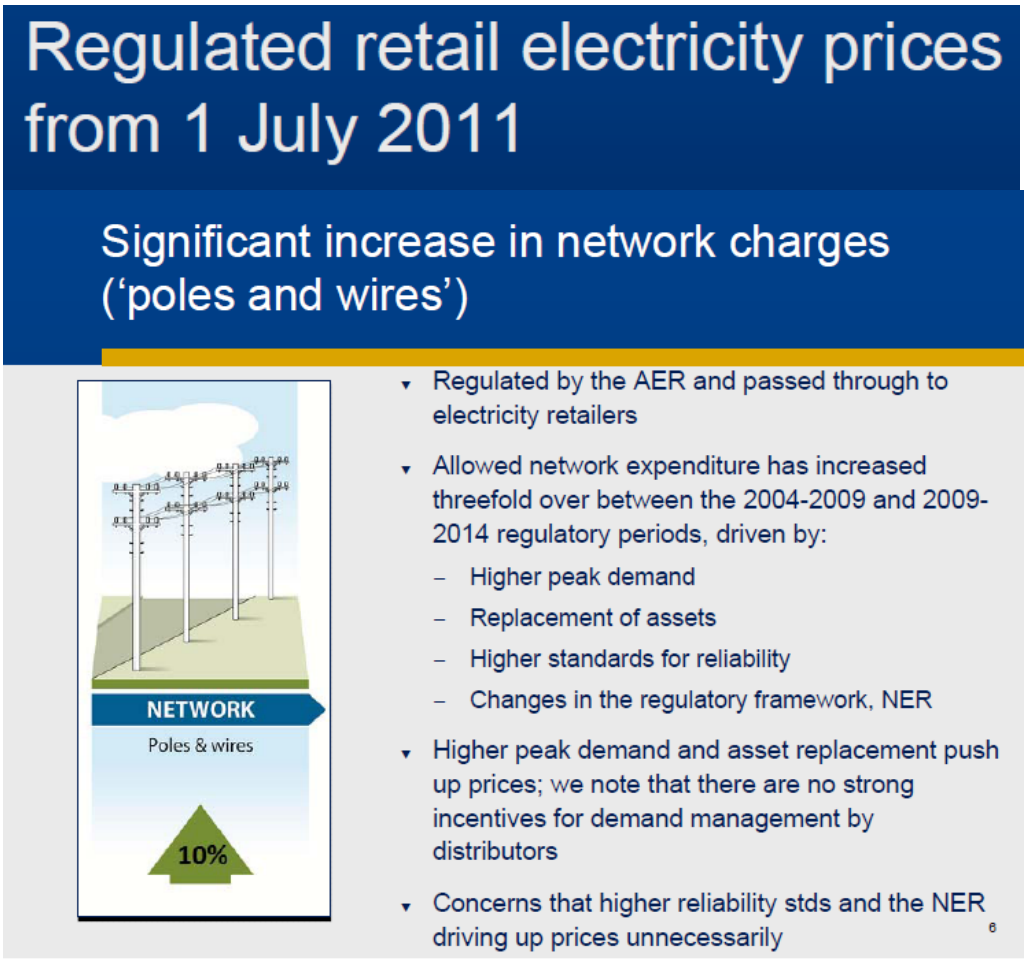
Infigen Energy (ASX: IFN) is an Australian Securities Exchange listed specialist renewable energy business with interests in 24 wind farms across the US and Australia. Infigen Energy is the largest owner and operator of wind energy facilities in Australia (557 MW) with six major wind farms in Australia capable of producing approximately 1,600 GWh per annum, or enough energy to supply over 200,000 homes annually. Infigen also has a significant pipeline of solar and wind development opportunities in Australia. In the United States, Infigen Energy has equity interests in 18 wind farms (1,089 MW).

The terms of reference for the inquiry cover many topics that are not directly related to Infigen Energy's business, such as energy efficiency, smart meters, and customer advocacy arrangements. Therefore, our submission will not cover all of the terms of reference and will instead focus primarily on the issue of electricity pricing.

Identification of the key causes of electricity price increases over recent years and those likely in the future

The largest component of residential and small business electricity bills is unquestionably transmission and distribution network costs which make up about one half of consumer's electricity bills. Network costs have risen very rapidly and are the largest cause of rising retail electricity bills over the past few years. The slide from a presentation by the Independent Pricing and Regulatory Tribunal (IPART) of NSW at the top of the next page succinctly explains some of the reasons for these rises in network costs.[1]

[1] Presentation entitled *Regulated retail electricity prices from 1 July 2011*, available from www.ipart.nsw.gov.au



As one can see from the slide above, the rise in network costs alone increased residential electricity costs by 10% from FY11 to FY12 in NSW.

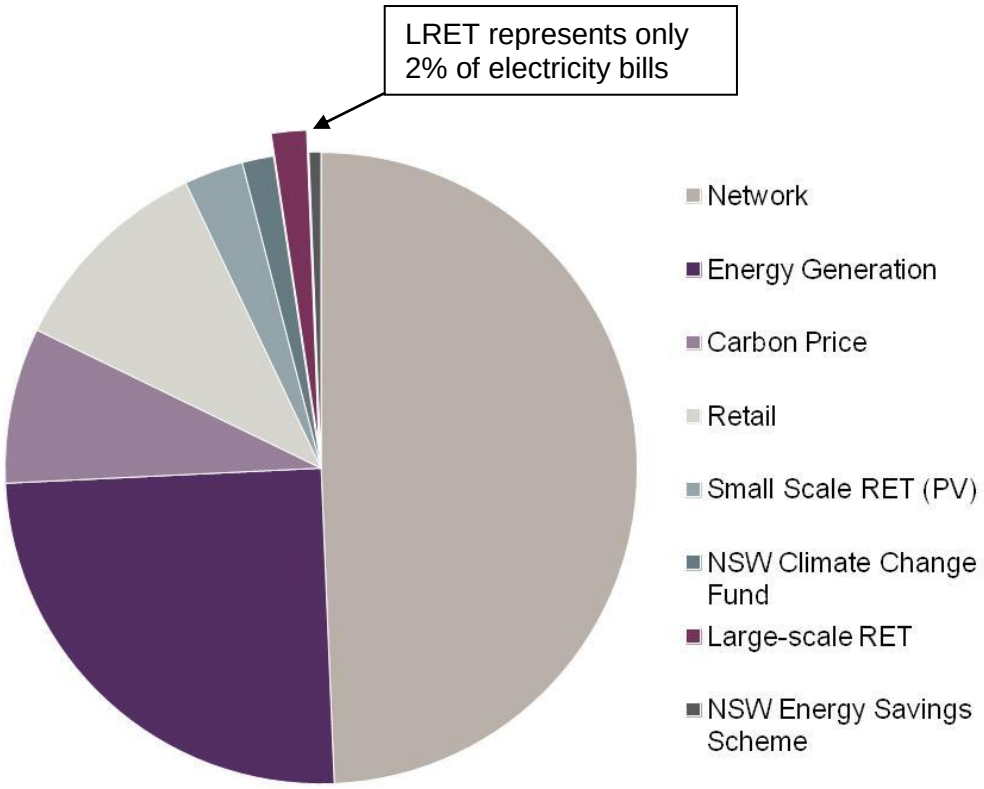
The Renewable Energy Target (RET) scheme is another factor in retail electricity prices, but it is a much less significant factor. The RET places an obligation on electricity retailers to purchase a certain percentage of their electricity from new renewable energy sources. The incremental cost of this obligation on retailers is then passed through to electricity customers. The RET scheme is Commonwealth legislation; therefore, the cost of the RET scheme is very similar throughout the country. In 2010, the Federal Parliament split the RET scheme into the Large-scale Renewable Energy Target (LRET) scheme and Small-scale Renewable Energy Scheme (SRES). In IPART's most recent retail electricity price determination, the cost of the LRET scheme for a typical residential household was found to be $38 per year[2].

Therefore, the LRET only costs households $3.17/month. This is the complete, and total, "subsidy" that is paid by consumers (or taxpayers) to build wind farms and other large scale renewable energy generation plant. As far

[2] *Fact Sheet – The impact of green schemes on regulated electricity retail prices from 1 July 2012*, IPART 13 July 2012

as price rises, IPART found that only .3% of the 18% retail electricity price rise from FY12 to FY13 was attributable to all "green schemes" (including the RET scheme)[3].

Data from IPART's FY13 retail price determination has yielded the following pie chart which graphically shows what a small percentage of a household's electricity bill is due to the LRET scheme.



As the LRET scheme costs households less than $3.20/month, it is clear that even ending the LRET scheme all together would have a negligible impact on household electricity bills.

It is worth noting that some elements of the media, and some Federal and State politicians, misrepresent the cost impact of building wind farms and other large scale renewable electricity generation plants on household electricity bills. For example, this front page article in the Daily Telegraph last year comprehensively misrepresents the wind energy's impact on electricity prices.

[3] *Fact Sheet – Changes in regulated electricity retail prices from 1 July 2012*, IPART 13 July 2012

Wind sending price of power sky high

exclusive

Geoff Chambers

ELECTRICITY prices could surge again as power companies sting customers to help bankroll wind farm projects being built across the state.

GoSwitch.com.au founder Ben Freund, whose site offers energy deal comparisons, said customers were being slugged to cover renewable projects.

Companies behind major projects include Origin Energy, AGL, Transfield Services and Epuron.

The renewable energy grid comparing the current long-run marginal costs for power generators revealed the difference between coal and wind energy. The 2008 report showed that by this year, wind energy projects would cost the equivalent of $97.62 per megawatt hour (MWh) compared with $45.99 for black coal.

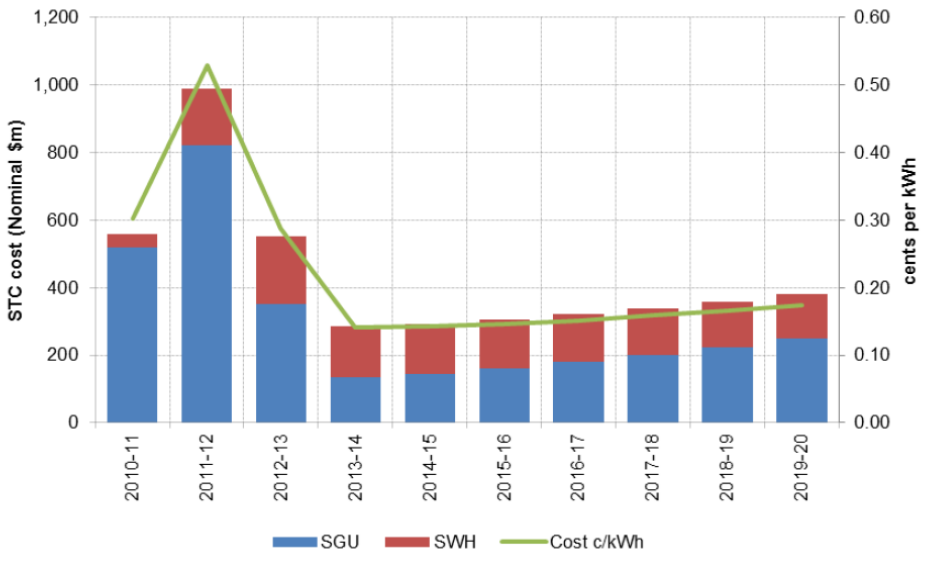
ment of Resources, Energy and Tourism released estimates of the levelised costs of existing and new electricity generation technologies.

"These estimates … indicate that without a carbon price the estimated levelised cost per unit of electricity for a new coal-fired power station

First, the LRET scheme is Commonwealth legislation---the increased charge on household electricity bills is the same whether 1 wind turbine is built in NSW or 1000. Second, it's hard to argue that the .3% increase in prices due to the LRET represents an electricity price "surge". Wind energy is not sending the "price of power sky high"…it's costing households $3.17/month.

With regards to the future costs of the RET scheme, the cost impact of the RET scheme is going to decline very rapidly--- even without any changes to policy settings. This is due to a dramatic reduction in SRES costs (shown in the graph below from the AEMC[4]) as the bonus multiplier is reduced and the rate of small scale generation uptake decreases. It is worth noting that the cost of the SRES scheme is estimated to fall from 0.5 cents/kWh to 0.15 cents/kWh from 2011/12 to 2013/14.

Figure 3.21 Forecast STC costs under the reference case



[4] *Impact of the enhanced Renewable Energy Target on energy markets*, Interim Report, Australian Energy Market Commission (AEMC) November, 2011

Therefore, it's clear that for FY14 and FY15, the increase in consumer electricity bills will actually be mitigated, to some degree, by a decline in the cost of the RET scheme.

Our last point is that the LRET scheme also has a beneficial effect for electricity customers. While wind turbines are relatively expensive to build, they are amongst the cheapest electricity generating technologies to operate as their fuel, the wind, is free and does not incur any resource extraction or transportation expense.

This is important as electricity generators tend to bid into the wholesale electricity market at prices near their marginal, or incremental, costs of generation. Therefore, wind farms almost always underbid coal and gas fired generators in the wholesale electricity market as their incremental costs to generate electricity are close to zero. This increase in low cost generation entering the National Electricity Market inevitably results in downward pressure on wholesale electricity prices. This is called the wind energy "merit order effect" and this has been present, and well documented, in Europe for many years. It has also had a material impact on wholesale electricity prices in South Australia for some time where wind energy comprises over 25% of SA's electricity generation.

According to the Australian Energy Market Operator (AEMO), who run the National Electricity Market[5],

> "*The lower [wholesale] price received by renewable [wind] generation is partly due to the significant portion of time where all the wind farms experience similar conditions, which tends to depress the South Australian regional [wholesale] price at those times".*

In other words, when the wind is blowing in South Australia, the influx of very low marginal cost wind energy reduces the wholesale price of electricity. In fact, as shown in Table 2 of the same report, the wholesale price of electricity during windy periods was half of the "normal", or average, wholesale price of electricity in FY11[6].

The exact impact of this "merit order effect" is difficult to precisely determine as one has to model how the SA electricity market would operate if the wind energy facilities were not present. However, AGL has performed such modelling and determined that if wind farms were not present in SA, the wholesale price of electricity would be $9.00/MWh higher.[7]

This compares with the Essential Services Commission of South Australia's (ESCoSA) most recent assessment that the cost of the LRET scheme was determined to be $3.66/MWh[8]. Therefore, if ESCoSA (and the ACCC) are

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[5] *2011 South Australian Supply and Demand Outlook*, AEMO p. xi
[6] Renewable, or wind energy, earned a wholesale price of $22.82 in FY11 vs the average wholesale price of $45.17.
[7] AGL Applied Economic & Policy Research Working Paper 30, p. 15 February 2012
[8] *2010 Review of Retail of Electricity Standing Contract Price Path – Final Inquiry Report and Final Price Determination Price Electricity Pricing,* ESCoSA

performing their role of making sure reductions in wholesale prices are passed through to retail customers, then South Australian customers should be receiving over 25% of their electricity from pollution-free wind energy at no additional cost. In fact, as the estimated decrease in wholesale electricity costs of $9.00/MWh exceeds the total cost of the LRET, currently $3.66/MWh, the net effect of the wind farms in SA should be *a reduction in retail electricity prices*.

It is also worth noting that the reduction in wholesale electricity costs attributable to the LRET scheme is set to increase and expand across the National Electricity Market (NEM) according to the AEMC. A report released late last year by the AEMC forecast that the LRET scheme will reduce the wholesale electricity price by $10-$15/MWh across the National Electricity Market in 2020[9].

Therefore, arguments that wind energy, and the LRET scheme, are "very expensive" and driving up electricity prices are simplistic and incorrect. First, the total current cost to household electricity customers, via the LRET scheme, is quite minimal at only $3.17/month. Second, wind energy is applying significant downward pressure to wholesale electricity prices in SA today, and is forecast to do so across the NEM later in this decade, which will, at least partially, offset the cost of the LRET scheme to electricity consumers.

Investigation of opportunities and barriers to the wider deployment of new and innovative technologies, including distributed clean and renewable energy generation

Infigen Energy would take this opportunity to address two barriers to the further deployment of distributed clean renewable energy generation.

When there is a need to augment the electricity network in a rural area due to the existing power lines being forecast to reach their load carrying limit on the hottest of days, there are several alternatives to address the situation:

1. Build a second power line, or replace the existing line with a higher capacity conductor
2. Implement a demand side response program to reduce loads during times of peak demand
3. Build a generation plant at the 'end' of the line to reduce the necessary electricity flow on the line

In theory, Distribution Network Service Providers (DNSPs) are required to consider all three of these alternatives, and others, before deciding on the most cost effective solution which would then be approved by the Australian Energy Regulator (AER). In reality, option #1 is almost always determined to be the 'best' option by the DNSP. One possible explanation for this is that DNSPs are rewarded for building new power lines (option #1), whereas there

[9] *Impact of the enhanced Renewable Energy Target on energy markets, Interim Report (p. 27)*, AEMC November, 2011

are no incentives to implement options 2 or 3. DNSPs earn a guaranteed return on their assets, so the more assets (i.e. powerlines and substations) they build, the higher the return they will earn.

The construction and operation of a solar PV facility at the 'end' of such a power line is a viable option that DNSPs should more seriously consider. Such a facility, if paid a significant portion of the avoided costs of building a second power line, could be financially viable without any further assistance (besides the existing RET scheme). While DNSPs will listen to such proposals, they do not end up being the "preferred" option even though this could be the lowest cost, and most environmentally beneficial, option.

Another significant barrier to distributed, in this case off-grid, clean, renewable energy generation is the continuing diesel excise tax rebate for mining operations. The cost of buying and transporting diesel to remote mine sites is very high and obviously results in significant particulate and greenhouse gas pollution when it is burned. Once the playing field is 'levelled' by removal of the diesel excise tax rebate, remote mining facilities could find that building solar PV (and/or wind) facilities would be their most cost effective energy solution without any further subsidies or grants being necessary. While diesel generation would still be required at night and/or when the wind is not blowing, the amount of diesel burned would be substantially reduced. There is an economic benefit for mining companies as provision of a significant portion of their electricity from renewable sources would help insulate them from inevitable increases in diesel fuel prices.

It seems odd that the Federal Government has implemented a price on carbon to charge some companies for their greenhouse emissions while maintaining a scheme which effectively pays other companies to continue their high level of emissions instead of utilising clean, renewable energy. In addition, the diesel excise rebate is a significant drain on the Federal budget. Elimination of the diesel excise tax rebates, just for medium-large scale power generation, could result in the construction of over 1000MW of pollution-free solar PV generation.

Infigen Energy welcomes the opportunity to contribute to this important inquiry and would be pleased to appear before the Committee to provide additional information on the points raised herein.

Please contact the undersigned if there are any questions or clarifications needed with regards to this submission.

Yours sincerely,

Jonathan Upson
Senior Development & Government Affairs Manager