

Merry Christmas

Christmas Update | December 2013

Epuron would like to wish you and your family a very Merry Christmas and a Happy and Safe New Year. It has been a busy and action packed year on many fronts so we thought a brief update was in order.

The Renewable Energy Market

Epuron was established in response to John Howard's Renewable Energy Target ("RET") which was legislated in 2000. Since then the RET has proven to be an efficient mechanism to drive investment in the lowest priced renewable energy technology and bring jobs and investment to Australia – usually in regional and rural areas. In South Australia, where the installed capacity of wind energy is highest, the benefits of the RET can be seen most clearly in its downward impact on electricity prices.

Australian Electricity Market Operator (AEMO) stated in 2012 that South Australia pool prices were the lowest since the start of the National Electricity Market. AEMO data showed wholesale prices were half of the average during periods of wind and that the average wholesale price was 0.5c per kWh cheaper due to wind. The Essential Services Commission of South Australia stated that the cost of wind power added just 0.36c per kWh to an electricity bill or \$18 a year per household. This led to South Australian households being \$7 per year better off due to the high penetration of wind into the electricity market. This year's reports from AEMO show the story continuing with consistent price reduction in wholesale electricity prices resulting from wind generation.

Since its introduction the RET has enabled an increase in wind energy generation. Large-scale solar energy projects are expected to join the RET market in coming years as solar becomes cost-competitive. If allowed to continue on its trajectory the RET will continue the downward pressure on prices in other states.

The Government will conduct a review of the RET in 2014. It is clear that the RET should be maintained in its current form to ensure that renewable energy investments continue and solar and wind continue to place downward pressure on wholesale electricity prices. Until the review has been concluded, most investment in new solar and wind projects will be slowed down.

If you meet your local Member of Parliament over the holiday season, please remind them how important it is to continue the RET in its current form.



Excellence Awards

As a Renewable Energy company, Epuron is also the proud owner of four operating solar power Plants located in the Northern Territory. Three of these recently won two Engineering Excellence Awards from Engineers Australia.

The TKLN Renewable Energy Project was awarded winner for 2013 in the following categories:

- Australian Solar Council Awards for Sustainability
- Research Development and Innovation

Epuron's team of highly skilled engineers was represented by Martin Poole, and Alex Huggett and their partners, at an Awards night they attended alongside Power & Water Corporation (Remote Operations), in Canberra in November 2013.



TKLN Solar Power plant, Kalkarindji, NT



TKLN Solar Power Plant, Lake Nash, NT

Gullen Range Wind Farm under construction

The Gullen Range Wind Farm (GRWF) which was originally developed by Epuron and is now owned by Goldwind Australia, is currently under construction. Located approx 20km west of Goulburn, NSW, comprising 73 wind turbines, the project received planning approval in 2010. Goldwind as of Dec 31 2011 had an accumulated installation capacity of 12GW world wide, equivalent to 9.6 million tons of coal saved per year or 13.11 million cubic metres of newly planted forest.



Gullen Range Wind Farm during construction Sept 2013.



Do wind farms emit harmful sound waves?

No! The Victorian Civil and Administrative Tribunal (VCAT), postponed its decision on Infigen's Cherry Tree Wind Farm in Victoria until it had considered evidence on health related matters. The Waterloo wind farm had been blamed for a wide array of problems by some wind farm critics, who claimed wind farms produce a form of low frequency sound known as infrasound which they claim is dangerous to human health. Concerns varied ranging from headaches and flu-like symptoms.

To test if wind farms were responsible for producing harmful noise the SA EPA put in place noise and weather monitoring at locations at distances of 1.3km to 7.6km and a range of directions from the Waterloo Wind Farm over the period of April to June 2013 and asked residents to keep a diary documenting experience of disturbing noise and symptoms they believe were caused by the wind farm. As part of the study the wind farm was also shut off six times during wind conditions where it would normally produce power.

The SA EPA has concluded from the study that:

The Waterloo Wind Farm meets relevant South Australian and international standards and there is no evidence linking the noise from the wind farm to adverse impacts on residents.

The study found that:

- Where detectable, the noise levels were compliant with the EPA's wind farm noise guidelines.
- While the wind farm did increase the level of low frequency sound under some conditions, it was found at levels "significantly below the accepted perception threshold of 85dB(G)".
- A barely perceptible 'rumbling' effect was found using resident diary records to focus the analysis. However, in many cases the EPA was unable to determine that described events could be attributed to the turbines; and at times reported events coincided with shutdowns of the plant.

The findings of the SA EPA contributed to the VCAT decision to approve the Cherry Tree Wind Farm.

Wind Monitoring

During 2013 Epuron installed a number of Fulcrum3D FS1 Sodars across various sites. The device uses sound pulses to measure the wind resource on the site (similar to a met mast) for the purpose of wind farm energy yield estimations.

The FS1 is currently undergoing an intensive validation process with independent engineers to facilitate its wider use in the renewable energy industry. So far the results are looking excellent.

F3D Sodar onsite alongside an 80m Met Mast



SUMMARY OF PROJECTS

Liverpool Range Wind Farm

It has been a productive year for development of the wind farm and finalising the environmental assessment. The local community continues to show their support for the project as evidenced by the 46 people who attended the Coolah/Cassilis Business Meeting in November. The meeting discussed the potential opportunities the project would offer the local community and how local businesses and employment will benefit from participation. We have been invited to hold a similar meeting in the new year for the Merriwa community and will advise further details in due course. In early 2014 we look forward to the governments public exhibition of the environmental assessment and would encourage the community to get behind the project and express their support. We will provide further details about the public exhibition process when dates are known.



View from Liverpool Ranges

Rye Park Wind Farm

Development of the wind farm has progressed positively during the year and we have just completed the spring/summer environmental survey across the project site. Results of the environmental survey will feed into the environmental assessment which we anticipate the government will publicly exhibit early in the new year. We will provide further details about the public exhibition process when dates are known. The community consultation committee established for the project has been actively meeting throughout the year. The CCC discussed matters about the wind farm and in particular the establishment of a community enhancement fund once the project reaches construction. Please let us, or the CCC, know if you have any ideas regarding the establishment of a fund for the project or where funding support may be required in the community.

Yass Valley Wind Farm

Development of the Yass Valley Wind Farm progressed well through 2013 and culminated in the submission of the revised Preferred Project and Submission Report to the Department of Planning and Infrastructure on the 18th

December. This is the final step in the development process before an assessment and determination is made by the Department. 2013 has also seen the creation of our Community Consultation Committee, which has met 6 times to discuss issues such as aviation, bush fire concerns, property values and the community enhancement fund.



View from 80m Mast of Yass Valley

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What human activities kill the most birds?

A new study released in November 2013 by Environment Canada titled '**A Synthesis of Human Related Avian Mortality in Canada**' looks at the ranking of human activities that kill birds. The results have the top nine killers as:

- Domestic & feral cats: 200 million
- Power lines, collisions and electrocutions: 25 million
- Collisions with houses or buildings: 25 million
- Vehicle collisions: 14 million
- Game bird hunting: 5 million
- Agricultural pesticides 2.7 million
- Agricultural mowing: 2.2 million young birds to 1 million adults
- Commercial forestry: 1.4 million nests to 900,000 adult birds
- Communications towers: 220,000

Wind energy in Canada (with 7,000MW installed according to the Canadian Wind Energy Association) is at no. 19 (13,000) after tall buildings (34,000) and marine gill nets (18,000).

The total installed capacity of wind energy in Australia in April 2012 was 2,480MW. It is therefore highly likely that in Australia other activities, including agricultural practices, kill many more birds than wind turbines.

Christmas Hours

The Epuron office will be closed over the Christmas break from 5pm 24th December and will open again on 6th January 2014. For anything urgent please email on info@epuron.com.au