

Friday, 13 April 2018



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Dear Tim,

Pooled Energy Response to the Proposed Rule Change to the Energy Saving Scheme.

Thank you for email dated 8th December 2017, requesting comments on the proposed rule changes to the Energy Savings Scheme.

Pooled Energy is an Energy Retailer authorised by the Australian Energy Regulator (AER) throughout the National Electricity Market (NEM). Our primary focus is the reduction of energy use by domestic swimming pools and we exclusively deal with swimming pool owners. As a result of this, I am personally a member of the Government's expert PIAG (Pump Industry Action Group) charges with Industry standards and the introduction of star-ratings for swimming pool pumps.

When a customer signs with Pooled Energy, we install sensors and automation on the swimming pool and achieve major energy savings in 4 ways:-

- a) In the ~95% of Australian swimming pools that have an existing single-speed pump, we install a Variable Frequency Drive (VFD), also called a Variable Speed Drive (VSD). This effectively turns a single speed pump into a 'multiple-star rated' pump with much improved efficiency (see more below).
- b) In the <5% of pools where there is a so-called variable speed pump, we improve its efficiency by changing it from a 'settable' pump to a true variable speed pump (see more below).
- c) We reduce the chemical needs to the pool substantially by using sensors, adaptive control algorithms and improved water chemistry. Since ~92% of Australia's pools use electrical salt-water chlorinators, this translates to substantial electricity savings
- d) We use an Intelligent Pool Controller, supervised via the Internet, together with algorithms and settings that respond to time-of-day, time-of-year, weather, forecast, water chemistry, swimming use, the state of the Grid, and the cost and price of power, to optimize the amount of running time of the pool each day, so as to save more energy overall

Note A: Most high star-rated pumps are so-called 'variable or multi-speed' pumps, which consist of a simple pump with attached VFD electronics attached piggy-back on the pump. In Pooled Energy's case, the VFD is in a separate electronics cabinet, rather than right on the pump, but the effect on is

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the same. There is just a longer power cable between the electronics and the actual motor.

Note B: The Pooled Energy combination of an existing single-speed pump with a true variable speed VFD provides superior energy-efficiency performance to most high star-rated pumps.

This is because most high star rated pumps are so called variable-speed pumps that are, in fact, misnamed. They are actually 'settable' speed pumps and are not 'variable' unless the owner sits with the pump pressing the speed control buttons to respond to the needs of the moment. On the other hand, Pooled Energy pumps are under the control of an integrated sensor and control package called an Intelligent Pool Controller and the speed varies with need. This can be thought of as Pooled Energy's system being the equivalent of an automatic transmission in a car, changing gears and speed as needed, while the conventional 'settable' speed pump is the equivalent of an automatic transmission stuck manually in a single gear.....and usually one at too high a speed for efficient operation.

Pooled Energy supports the Energy Savings Scheme and have only commented on questions 26 to 28 below as the other questions apply to areas outside our area of expertise.

Question 26 – Yes Pooled Energy wishes to be accredited to undertake pool pump replacements using the HEER method but requests that pool pump conversions also be allowed as part of the scheme. It really should not make any difference if the pump is a new one with electronics integrated piggy-back or if the electronics are added at the end of the power cable, if the overall efficiency improvement is the same. This is important as some 95% of Australia's pools have single-speed pumps that can be converted to have better performance than multi-star pumps, at a fraction of the cost.

Further, the Pooled Energy sensors, Intelligent Pool Controller and VFD provide a substantially greater electricity saving than multi-speed or variable speed pumps that are set to a single speed for months and years.

In many cases, Pooled Energy's savings are up to 70% of a swimming pool's total energy consumption. This has been independently verified by Common Capital in a study funded by ESS, which has been submitted separately. Pooled Energy has made significant improvements since the Common Capital study and increased its efficiency since then.

I would like to comment that, whereas I understand the need for the Government to focus on star-ratings, both Pooled Energy and most members of the Pump Industry Action Group agree that that energy savings in practical situations are determined by several factors in addition to the star-rating. Some of these are described above. Many, if not most, 'variable/settable' speed pumps are set to high speeds to cope with the worst case needs during a summer and therefore are inefficient compared with their nominal star ratings. Such pumps are incapable of the true variable speeds used by Pooled Energy, which delivers the most savings. We believe that the rules should allow such

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additional savings *that arise from having an intelligent control system in addition to a star-rated pump*, to be taken into account and would like to discuss these. This would produce significant additional savings.

Question 27 – Our suggestion for evidence of change would be that the previous status be proved by a photo of the name plate of the previous pump, together with a photo of its location with the pool equipment and a photo of the front of the house showing the house number be provided with the submission for certificates. The name plate will show previous pump capacity and serial details of the old pump.

The new status in Pooled Energy's case can be proved by the existence of the VFD at each site, or the entire pump and VFD, when that was supplied. In addition, Pooled Energy monitors the energy use of all its managed pumps, on-line, via the internet, on a continual basis.

Question 28 – The savings implied by the star-rating system show the result of a theoretical pump operating with a theoretical filter, when set up and operated correctly, under a single set of circumstances. In practice, it is only possible to obtain meaningful energy savings on a continuing basis using sensors and an automatic control system that responds to real-world needs. Pooled Energy does this and delivers considerable better savings as a result. We suggest that there be:-

- a) a level of ESC awarded for a nominal improvement of star-rating...whether it is achieved by pump replacement or pump enhancement using additional electronics.
- b) Additional ESCs awarded for the reduction in chlorinator electrical use. The chlorinator is the largest power draw in many pools after the filter pump has been uprated.
- c) Additional ESCs awarded for having an intelligent control system that delivers additional savings.

We would like to discuss this in more detail and I will call you shortly. Please do not hesitate to contact me on 0414491124

Yours sincerely,

John Riedl
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