



POOL PRODUCTS
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Docket number #12-AAER-2F, Residential Pool Pumps and Motors

A handwritten signature in black ink that reads 'Scott Petty'.

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California Energy Commssion

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Below are responses to the presentation from the California Energy Commission dated April 9, 2013 regarding, among other products, Residential Pool Pumps:

- Much of the information requested by the Commission can be found in the following:
 - California Energy Commission Appliance Energy Database, which includes information such as:
 - Performance data of various models, including total horsepower, name plate horsepower, and flow rate at defined system curves
 - ANSI/APSP/ICC-15 2011, “Residential Swimming Pool and Spa Energy Efficiency”, which includes information such as:
 - Product definitions
 - Test methods
 - Note this standard was modeled largely after the applicable pool and spa portions of California’s Titles 20 and 24
 - Version 1.0 ENERGY STAR® Specification for Pool Pumps, which includes information such as:
 - Product definitions
 - Test methods
 - Note: unlike APSP-15 and Title 20, which are prescriptive standards that require specific technologies (e.g. must be multi-speed if greater than 1.0 THP), ENERGY STAR metrics are based on quantitative performance, namely a minimum Energy Factor value at System Curve A. Quantitative metrics are generally preferred as they do not preclude the use of certain technologies. An analogy from the automotive industry is the use of specific gas mileage requirements instead of not allowing the use of certain designs such as a V8 motor.
 - Hayward recommends the Commission consider using quantitative metrics, ideally aligned with the ENERGY STAR program, as the basis for updates to pool pump efficiency standards.
- Below is additional information regarding the technology of pool pumps:
 - Energy efficiency of a pool pump can be improved multiple ways, the most fundamental of which are more efficient hydraulic and electrical components. Specifically, the more hydraulically efficient the “wet end” (e.g. the impeller, diffuser, etc.), the less energy is consumed to do the same amount of work (i.e. move the same amount of water). Similarly, a more electrically efficient motor will consume less energy. The biggest opportunity to save energy is via a reduction in speed and the subsequent and dramatic reduction in power consumption as a result of the Pump Affinity Law. This can literally reduce power consumption by an order of magnitude. For example, a pump running on high speed (3450 RPM) can often consume 2,000 W or more while, at 1000 RPM, less than 100 W. Even compensating for the additional run time needed to achieve equivalent work (turnover), the power savings are tremendous.
 - In general, residential and commercial pumps are fundamentally the same in design. The primary differences can be size, both in terms of total horsepower and the pump itself (e.g. inlet/outlet ports, basket volume, etc). The energy saving principles noted above apply to both, although most commercial installations have minimum turnover and flow requirements that may limit the ability to run pumps at lower energy saving speeds for much or even all of the day.

- Below is additional information regarding the market for residential pool pumps:
 - The primary barrier to energy efficient pumps, as is typical for most energy efficient products from light bulbs to hybrid cars, is the increased purchase price to the consumer. This is often overcome when the energy savings potential and typical rapid payback is explained to the consumer (typically by the pool dealer). This can be accomplished in a variety of ways; one of the most common is through the use of Energy Calculators provided by many of the pump manufacturers. These Calculators allow users to estimate their energy savings based on the wide number of associated variables, e.g. run time per day, length of pool season (number of months), cost of electricity, etc.
 - Consumers can identify energy efficient products by information provided by the manufacturer, including product literature, websites, and even product packaging. As of February 2013, eligible pool pump models apply the ENERGY STAR mark to the product and associated marketing materials. In many key pool markets such as California, Florida, and Arizona, local power utilities may offer a rebate for the installation of energy efficient pumps and, if so, typically communicate the opportunity to their customers.
 - Variable speed pumps are the fastest growing segment of the residential pool pump industry. The energy savings potential, combined with eligible rebates in many areas of the country, have driven the rapid adoption of these pumps across much of the country.

- In summary, Hayward strongly supports the growth of energy efficiency opportunities through programs and standards such as Title 20, APSP-15, and ENERGY STAR. To optimize the impact to the industry, we would like to see further alignment between the various organizations for aspects such as product definitions, test methods, and product requirements. Common standards, ideally with quantitative metrics, provide manufacturers the greatest level of flexibility for further innovation of energy efficiency products.