

DOE Pump Efficiency Regulations Update



**EFFICIENCY
MATTERS**

Pump manufacturers should prepare for the changes that the impending DOE pump efficiency regulations will bring, including possible costly design improvements.

First of Two Parts

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This is the first of a two-part series that discusses the impending U.S. Department of Energy (DOE) pump efficiency regulations and how the Hydraulic Institute (HI) is working with its members, the DOE and other groups to reduce the burden on U.S. pump manufacturers

while supporting DOE efforts to achieve energy savings and efficiency improvements in the marketplace. The U.S. pump manufacturing industry has enjoyed a long history unfettered by federal regulations. As the DOE develops new regulations for pump efficiency, that will change. Mandatory

pump rules are expected to take effect in 2016 and will begin to be enforced in 2019. Taking the lead in representing the pump industry, HI has communicated with the DOE since learning about the new rulemaking and, in December, met with its members to officially approve a new negotiated rulemaking process under the rules of the Appliance Standards Rulemaking Advisory Committee.

As DOE pump efficiency regulations are formulated, pump manufacturers should pay close attention to the direction in which the rules are headed and even begin defining actions that will ensure future compliance of their affected products. While the levels of pump efficiency defined by new regulations are uncertain, they will most likely involve design improvements. If the DOE models its regulations after the European Union (EU) standards, pumps not inherently efficient in their peer group across all companies that manufacture the same types of equipment will either be removed from the market or must be redesigned to meet higher efficiency levels.

While the outcome of these pump efficiency regulations is still uncertain, the DOE made it clear that Congress authorized them to set minimum efficiency standards for commercial and industrial pumps in 1977.

As the DOE regulatory process matures, it follows two paths—a traditional and negotiated approach (see Table 1)—that merit the attention of pump original equipment manufacturers (OEMs) and its future impact on their market.

TRADITIONAL RULEMAKING	NEGOTIATED RULEMAKING
1975 Energy Policy and Conservation Act	February 20, 2013 DOE Framework Hearing
June 13, 2011 DOE issues request for information	February 28, 2013 DOE convenes first ASRAC meeting: discusses pumps
July 11 and September 16, 2011 HI response letters	May 17, 2013 HI requests to pursue negotiated rulemaking
2012 HI requests to meet with DOE	July 16, 2013 DOE notice of intent to establish ASRAC Negotiated Rulemaking Working Group
January 25, 2013 DOE framework document	October 24, 2013 DOE presents at HI fall meeting
February 20, 2013 DOE framework hearing in Washington, D.C.	November 1, 2013 Notice of first ASRAC Commercial and Industrial Pumps Working Group meeting
May 2, 2013 HI provides formal response to DOE framework document	December 18 - 19, 2013 ASRAC Commercial and Industrial Pumps Working Group meeting in D.C.
2013-2014 DOE preliminary analysis	Monthly Meetings: 2014 ASRAC Commercial and Industrial Pumps Working Group meeting in D.C.
Summer 2015 Notice of proposed rule (NOPR)	2014 DOE preliminary analysis
Spring 2016 Final rule	2015 Final rule
2019 Effective date	2020 Effective date

Table 1. The DOE rulemaking process

HI RESPONDS TO THE DOE

Since the DOE first announced its pump rulemaking plans three years ago in the *Federal Register*, HI members and staff have advocated for sensible regulations. Recognizing that regulations were inevitable, the group has been realistic in mitigating the impact on the pump industry, while supporting DOE energy savings and efficiency improvement goals.

Within days of learning about the potential pump efficiency regulations, a delegation of HI members and staff met with the DOE to better understand the regulatory process and, as best as possible, begin to help shape its outcome. HI members also met with the American Council for an Energy Efficient Economy (ACEEE), the National Association of Manufacturers (NAM) and staff on the House and Senate Energy committees. These meetings helped the pump industry better understand the DOE rule-making process and become formally engaged with regulators, energy efficiency advocates and DOE consultants.

In 2011, HI responded to a formal DOE request for information with three lengthy letters that outlined its views on regulations, leadership role with technical standards and guidelines, and the benefits of end-user education

that provides knowledge on proper pump selection, pump/system interactions and how pumps can be operated at or near their best efficiency points.

THE NEED FOR DOE EDUCATION—AN ONGOING OPPORTUNITY

Through its interactions with DOE regulators, consultants and members of energy efficiency non-government organizations (EENGOS), HI realized that this audience was mostly unfamiliar with pump and pumping system operations.

HI staff and members organized several briefings for all involved individuals to provide a better understanding of the complexities of pump operations, pump hydraulic design, and pump and system interaction. HI also offered day-long training on the HI and Pump Systems Matter course, "Pump Systems Matter: Energy Efficiency and Bottom-Line Savings."

In addition, HI met with energy efficiency non-government organizations and DOE consultants in Washington, D.C.; Dallas, Texas; Denver, Colo.; and Parsippany, N.J., to explore common ground and reach an agreement on



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regulatory approaches to energy savings regarding pumps and pumping systems. HI advocates a product scope similar to that adopted under EU pump regulations, along with a method of recognizing the pump system optimization potential to achieve the greatest energy savings.

An independent agreement with EENGOs, which might have led to a DOE sanctioned rule, remained elusive during 2013. The possibility of rulemaking based on direct negotiations with other stakeholders, under DOE established rules, was then explored as the traditional rulemaking process advanced.

The DOE’s framework document was released in January 2013, and HI members presented testimony during a day-long public hearing in Washington, D.C., at the end of February. A week later, HI delegates and staff attended the first meeting of the DOE’s Appliance Standards Rulemaking Advisory Committee (ASRAC).

Prospects of a direct negotiation through an ASRAC Working Group on Pumps were explored by the HI board and were subsequently approved in May 2013, and the DOE organized this effort during the summer months and into the fall. DOE officials updated HI members at the fall meeting in Baltimore, Md., sharing insights into their process. The first meeting of the ASRAC Working Group on Pumps was held on December 18 and 19, 2013. As this negotiated rulemaking process unfolds, the DOE’s traditional rulemaking continued in earnest in 2013 and will continue in 2014 and 2015, leading to a final rulemaking in 2016. The ASRAC Working Group will continue its monthly meetings in 2014 to find common ground among its 16 members, leading to a possible direct and final rule that may come earlier than the traditional DOE rulemaking process timeline.

ADVOCATING FOR A LIMITED PRODUCT SCOPE

Since the DOE pump efficiency rulemaking began in early 2011, HI has advocated for a product scope relatively consistent with EU regulations.

HI’s analysis of the U.S. pump market, reported to the DOE on May 2, 2013, confirmed, “that the variety of existing products and numerous market segments, each with unique requirements, is wide and complex as similar designs cross multiple market segments

and are applied differently, resulting in a large number of unique product variations.”

To capture the largest population of pumps that cost effectively produce the greatest energy savings, HI recommended aligning with directive EU No. 547/2012, which focuses on non-engineered/non-specialized pumps, in standard design, applied in clean-water-only applications for the broadest scope.

Pump types covered by EU No. 547/2012 are outlined in Table 2 with their U.S. equivalents noted by the ANSI/HI nomenclature designation and description. HI has pressed for the use of HI standards for establishing well-understood pump industry reference documents, including pump test procedures.

HI’s efforts on test procedures are now focused, as part of the rulemaking process, on creating a unique test procedure that will limit the test tolerance bands for the purpose of establishing minimum pump performance and efficiency levels.

Included in the scope of the pumps listed in Table 2 are:

- Only standard pumps of non-engineered/non-specialized design
- Only clean water (including grey water)
- 26 gallons per minute and greater, up to a maximum 459* feet total head (H)

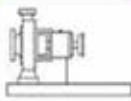
	EU Nomencl.	ANSI/Hi Nomencl.	Description
	ESOB	OH0	Flexibly Coupled Horizontal, Frame Mounted Centrifugal
		OH1	Flexibly Coupled Horizontal, Foot Mounted Centrifugal
	ESCC	OH7	Close Coupled Single Stage, End Suction
	ESCCI	OH3	Flexibly Coupled Vertical, In-Line Centrifugal
		OH4	Rigidly Coupled Vertical, In-Line Centrifugal
		No eqv.	OH5
	MS	VS8	In-line casing diffuser
	MSS	VSO	Close Coupled, Submersible Diffuser Centrifugal 4" or 6" Bowl Diameter Only

Table 2. Pump types

- Horsepower range from 1 to 200
- Pumps designed to operate in a temperature range of -10 C to +120 C

*Note: 295 feet is incorrectly stated as the maximum head in the DOE framework document (see page 8 for the incorrect reference. It should be 459 feet H). Pumps and liquids specifically excluded from the scope are positive displacement, fire pumps, self-priming, wastewater (no solids-handling) and circulators.

The U.S. DOE regulations on pump efficiency will likely reshape the industry for years. The outcome of a DOE regulation on pump efficiency is not certain. The process is now following two parallel paths. Pump companies that may be impacted by the rulemaking should track this closely and prepare for uncertain outcomes on the efficiency levels that may be imposed under this new regulatory regime.

What appears clear, if the EU is a guide, is that the least efficient pumps currently being sold in the U.S. market—within the scope of DOE covered products—will likely be banned for sale once the rulemaking is in effect. The levels and the methods that will be used in the process are uncertain.

HI and its members have been engaged in the process since January 2011. Many pump manufacturing companies, as HI members, stayed informed on the potential impact and will continue to work through HI to advocate for sensible rulemaking.

Part two of this two-part series will explore the DOE framework approach and HI's advocacy for an "extended product" approach. **P&S**

Serving as executive director of HI, Robert Asdal has successfully led its growth for more than 22 years, including reshaping its strategic direction, growing membership programs and services, and strengthening HI's global recognition as a leading authority on pumps and pumping systems. Asdal is a member of the American Society of Associate Executives and serves on the Editorial Advisory Board of *Pumps & Systems* magazine. He is also active in the Council of Manufacturing Associations of the National Association of Manufacturers, where he served on the board of directors. He holds a BSEE degree from Fairleigh Dickinson University. Asdal can be reached at rasdal@pumps.org.



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