U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Dedicated-Purpose Pool Pump (DPPP) Motors

Public Meeting

August 10, 2017

Department of Energy

Building Technologies Office

Welcome

- Introductions (around the room)
- Role of the Facilitator
- Ground Rules
  - Speak one at a time
  - Say your name for the record – there will be a complete transcript of this meeting
  - Be concise – share the 'air-time'
  - Keep the focus here – cell phones on silent; limit sidebar conversations
  - Webinar participants turn phone on mute; "raise your hand" to be recognized to speak
- Housekeeping Items
- Agenda Review
- Opening Remarks / Stakeholder Presentations

Listening Via the Webcast

- DOE is broadcasting this meeting live over the Internet.
- DOE is providing the webcast to accommodate stakeholders that are unable to attend the public meeting in person.
- The web broadcast allows stakeholders to listen in and view the slides.
- All stakeholders are encouraged to submit written comments after the public meeting.

Agenda

10:00 am	Welcome, Introductions, and Agenda Review
10:10 am	Purpose of Public Meeting
10:20 am	Regulatory History and Rulemaking Overview
10:30 am	Opening Remarks from Participants
11:00 am	Scope and Definitions
12:00 am	Equipment Classes
12:30 pm	Lunch
1:30 pm	Metric and Test Procedures
2:20 pm	Overview of Appliance Standards Analyses
2:40 pm	Closing Remarks and Comment Submission Instructions
3:00 pm	Adjourn

Purpose of the Public Meeting

- Present potential scope, definition, and metric for dedicated purpose pool pump (DPPP) motors;
- Present the procedural and analytical approaches to evaluate potential energy conservation standards and test procedures for DPPP motors;
- Inform interested parties of and facilitate the rulemaking process;
- Provide a forum for public discussion of rulemaking issues;
- Encourage interested parties to submit data, information, and written comments.

Issues for Discussion

DOE welcomes comments, data, and information from stakeholders on a variety of issues.

Issue Box: Issue boxes correspond to the list of issues for which the Department seeks inputs and/or comments .

NOTE: Comments are welcome on any issue, whether prompted by an issue box or not.

Public Meeting Slides Topics

1. Regulatory History and Rulemaking Overview
2. Scope and Definitions
3. Metric & Test Procedures
4. Overview of Appliance Standards Analyses
5. Closing Remarks

Regulatory History

- DOE published a direct final rule establishing energy conservation standards for dedicated-purpose pool pumps. 82 FR 5650 (January 18, 2017);
- DOE published a test procedure final rule for dedicated-purpose pool pumps 82 FR 36858 (August 7, 2017);
- Both rulemakings reflect the recommendations of an ASRAC Working Group (**December 2015 DPPP Working Group Recommendations:** Docket No. EERE–2015–BT–STD–0008, No. 51).
- In response to the publication of the direct final rule, **industry and energy efficiency advocates recommended that DOE set standards for DPPP motors that can be used in replacement applications** to complement the DPPP rulemakings and ensure replacement DPPP motors retain efficiency levels upon replacement.
- DOE estimates DPPP motor shipments, including replacement motors, to represent about 2.65 million units in 2015.*
- In July 2017, DOE published a **Request for Information** regarding test procedures for Small Electric Motors and Electric Motors. 82 FR 35468 (July, 31, 2017).

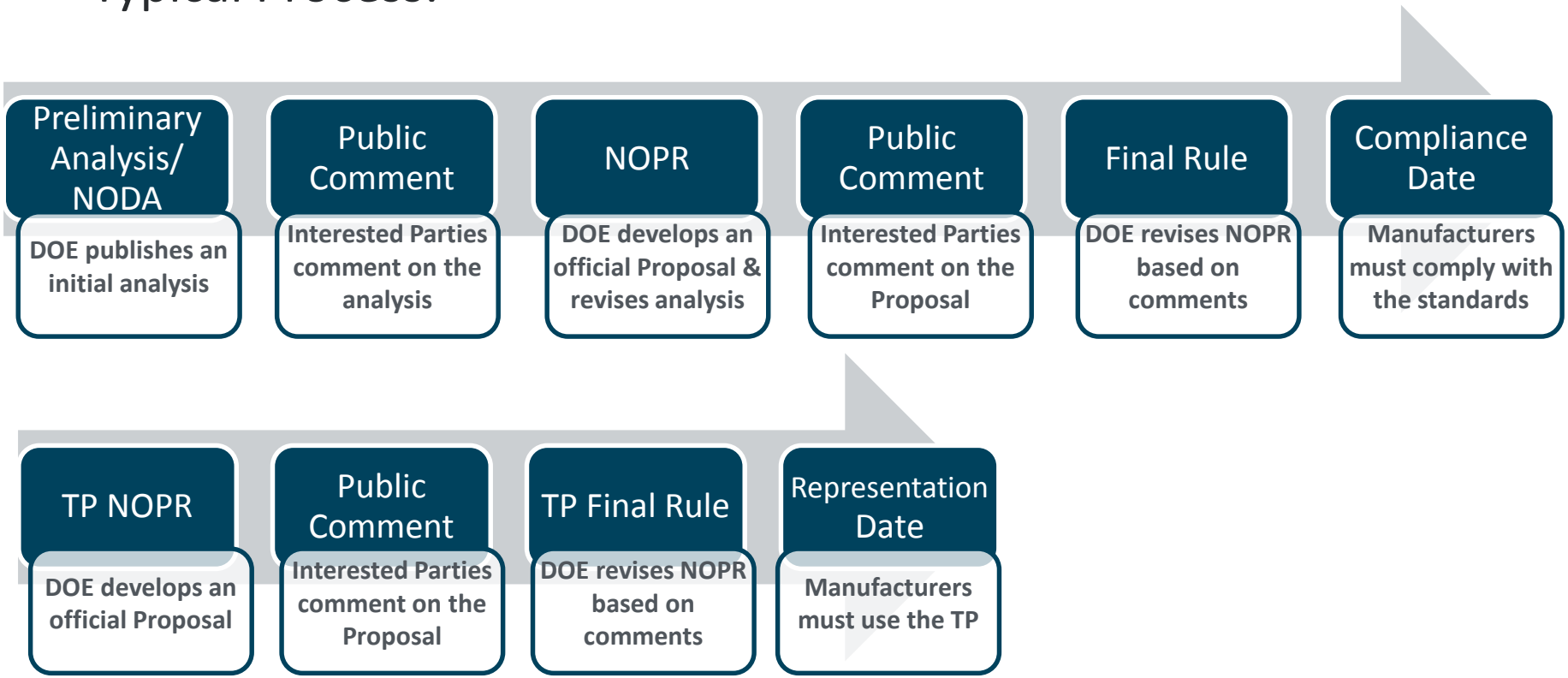
***Preliminary estimate** assuming one motor per DPPP shipment and one replacement motor per three DPPP shipments based on information from the California Energy Commission DRAFT STAFF REPORT, *Second Revised Analysis of Efficiency Standards for Pool Pumps and Motors, and Spas*, July 12,2017, Docket number 5-AAER-02

Statutory Authority

- The Energy Policy and Conservation Act (EPCA) of 1975 established an energy conservation program for certain commercial and industrial equipment.
  - Electric motors and small electric motors types of covered equipment under EPCA. (42 U.S.C. 6311(1)(A), 42 U.S.C. 6311(13)(G))
  - As electric motors, DPPP motors are a category of covered motors.
  - EPCA authorizes DOE to issue standards, test procedures, and labeling requirements for covered equipment. (42 U.S.C. 6313(b), 42 U.S.C. 6314(a)(5) and 42 U.S.C. 6317(b))
- Manufacturers must use the test procedure as the basis for:
  - Certifying to DOE that their equipment complies with applicable energy conservation standards adopted under EPCA. (42 U.S.C. 6295(s) and 6316(a)(1))
  - Making representations about the energy consumption of the equipment. (42 U.S.C. 6314(d))

Rulemaking Overview

- Typical Process:



- If DOE were to undertake a negotiated rulemaking or receive a consensus agreement there could be deviations from the typical process to expedite.

Opening Remarks from Participants

Meeting participants are invited to provide opening remarks or statements at this time.

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Introduction to Scope and Definitions

Approach

- **Consider a scope that would align the motor categories used in DPPP applications with those regulated through the DPPP rulemaking.**
- **DOE could also establish the scope and definitions based on a smaller subset of DPPP motors.**

Scope

- The **scope of the rulemaking** refers to the specific subset of motors for which this rulemaking will consider establishing energy conservation standards.
- Equipment variety, design features, capacity, and other parameters, may be used to establish the **scope of the rulemaking**.
- To clearly and unambiguously establish the **scope of the rulemaking**, DOE must **define** exactly what varieties of motors are **DPPP motors** for the purpose of this rulemaking.

Definitions

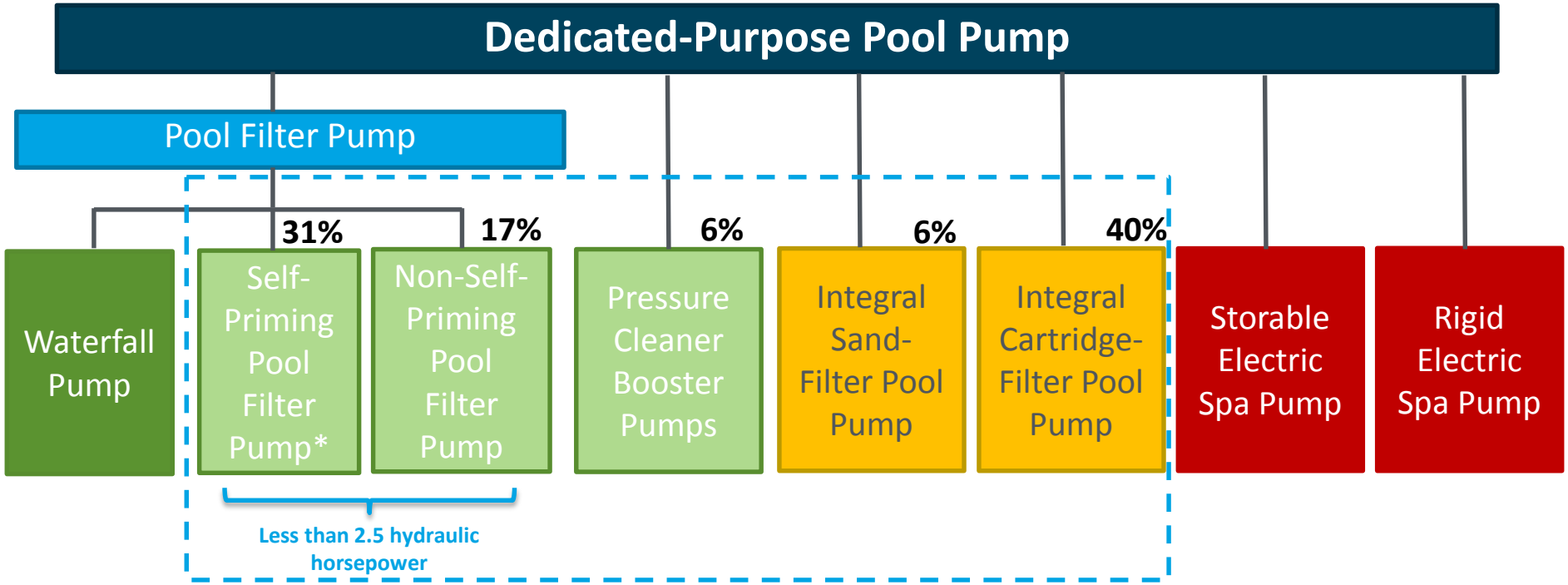
- In order to include motor varieties within the scope of this rulemaking, they must be clearly differentiated from non-DPPP motors and other regulated motors in subpart X and subpart B of 10 CFR 431.
- Ideally, definitions should be based on design, physical features, performance characteristics, sales configuration, etc.; not application or design intent.

Scope of the Dedicated-Purpose Pool Pump Rulemaking

DOE adopted the following definition:

Dedicated-purpose pool pump means a self-priming pool filter pump, a non-self-priming pool filter pump, a waterfall pump, a pressure cleaner booster pump, an integral sand filter pool pump, an integral cartridge filter pool pump, a storable electric spa pump, or a rigid electric spa pump.

DOE adopted standards for a smaller subset of DPPPs. (Subpart Y of 10 CFR 431)



**The scope of the DPPP rulemaking excluded DPPP served by three-phase motors*

Percent values refer to total 2015 DPPP shipments

Dedicated-Purpose Pool Pump Rulemaking

DPPP Variety	% Shipments (2015)	% Energy Savings over 30 years*
Self-Priming Pool Filter Pumps	**31 %**	**90.2 %**
Non-Self-Priming Pool Filter Pumps	17 %	1.5 %
Pressure Cleaner Booster Pumps	6 %	0.1 %
Integral Cartridge Filter Pool Pumps	40 %	7.5 %
Integral Sand Filter Pool Pumps	6 %	0.8 %

*Percent of the lifetime savings for DPPP purchased in the 30 year period that begins in the first full year of compliance with the new DPPP standards (2021- 2050)

Source: DPPP DFR TSD

Description of DPPP Motors in Scope

General description

DOE identified 10 common characteristics for DPPP motors (specific construction varies by model and manufacturer):

- Phase: Single Phase;
- Topology: Capacitor start capacitor run, capacitor start induction run, permanent split capacitor, or electronically commutated motors;
- Speed: Single speed, two-/multi-speed, or variable speed ;
- Horsepower: Between 1/3 HP and 5 hp (inclusive);
- Frame: NEMA 48 or 56 (or IEC equivalent);
- Enclosure: TEFC or ODP;
- Insulation class: B;
- Mounting: Square or C Flange mounting;
- Keyed or Threaded shaft; and
- "UL 1081 Ready".

Source: Century (Regal)

Source: Marathon

Note: Extra features may also be present but not across all DPPP motors (e.g. increased bearing protection; sealed ball bearings; thermal protection; timer; and two compartments). Therefore, these features were not listed here. These additional features would not exclude a motor meeting all 10 characteristics from the scope.

Description of DPPP Motors in Scope

Key Challenge: Differentiating DPPP motors from other pump motors

DOE identified motors marketed for applications other than pool pumps that have the same construction characteristics as DPPP motors:

- Some **single phase jet pump motors** which can be used in various applications and industries such as **food processing and washdown applications;**
- Some **single phase jet pump motors** used in residential pump application such as **lawn sprinklers.**

Note: These motors were not described as UL 1081 ready.

Source: Baldor/Reliance

Source: U.S. Motors Emerson

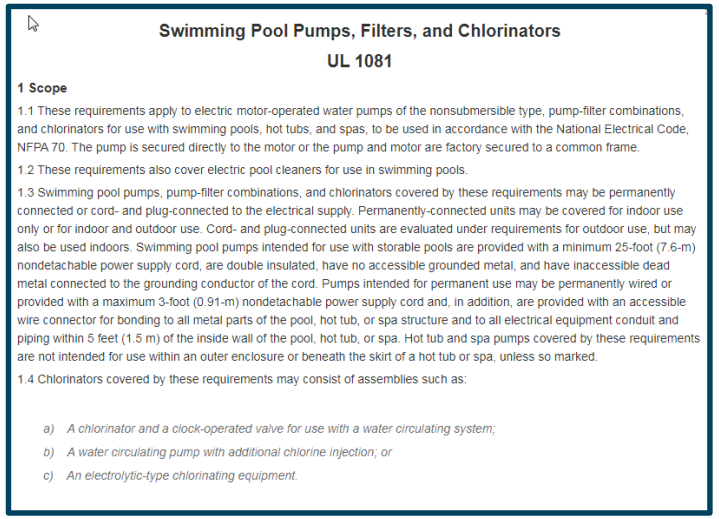
Issue Box: DOE seeks inputs on how DPPP motors used in regulated self-priming pumps, non self-priming pumps, and in pressure cleaner booster pumps could be identified based on physical and technical features. For example, are there any unique characteristics that could be used to distinguish these DPPP motors from jet pump motors used in other applications such as irrigation and food processing?

UL 1081 Certification

Motor manufacturers cite UL 1081 in the majority of their DPPP motor spec sheets, but it is not always cited.

- "UL 1081 compliant";
- "UL 1081 design";
- "Design complies with requirements for motor/pump/cord assemblies that must pass the UL 1081 water spray test".

- UL 1081 is written to apply to the fully assembled pump (bare pump + motor).
- A motor is not formally "listed" or "certified" to UL 1081.



Swimming Pool Pumps, Filters, and Chlorinators

UL 1081

1 Scope

1.1 These requirements apply to electric motor-operated water pumps of the nonsubmersible type, pump-filter combinations, and chlorinators for use with swimming pools, hot tubs, and spas, to be used in accordance with the National Electrical Code, NFPA 70. The pump is secured directly to the motor or the pump and motor are factory secured to a common frame.

1.2 These requirements also cover electric pool cleaners for use in swimming pools.

1.3 Swimming pool pumps, pump-filter combinations, and chlorinators covered by these requirements may be permanently connected or cord- and plug-connected to the electrical supply. Permanently-connected units may be covered for indoor use only or for indoor and outdoor use. Cord- and plug-connected units are evaluated under requirements for outdoor use, but may also be used indoors. Swimming pool pumps intended for use with storable pools are provided with a minimum 25-foot (7.6-m) nondetachable power supply cord, are double insulated, have no accessible grounded metal, and have inaccessible dead metal connected to the grounding conductor of the cord. Pumps intended for permanent use may be permanently wired or provided with a maximum 3-foot (0.91-m) nondetachable power supply cord and, in addition, are provided with an accessible wire connector for bonding to all metal parts of the pool, hot tub, or spa structure and to all electrical equipment conduit and piping within 5 feet (1.5 m) of the inside wall of the pool, hot tub, or spa. Hot tub and spa pumps covered by these requirements are not intended for use within an outer enclosure or beneath the skirt of a hot tub or spa, unless so marked.

1.4 Chlorinators covered by these requirements may consist of assemblies such as:

a) A chlorinator and a clock-operated valve for use with a water circulating system;

b) A water circulating pump with additional chlorine injection; or

c) An electrolytic-type chlorinating equipment.

UL 1081 Certification

Instead, a motor manufacturer may conduct certain UL 1081 tests to signal to the pump manufacturer that the pump will not fail certain provisions of UL 1081 due to the motor.

Key sections of UL 1081 relating to the motor include:

- Sections 7.2, 7.3, 7.4, 7.12, 7.13, 9, 25.1.4, 26, 30.1: Enclosure thickness; fire, electric shock, injury protection;
- Section 11: Corrosion resistance;
- Section 27: Overcurrent and locked rotor protection; and
- Section 40: Water exposure test.

Issue Box: DOE seeks input on whether motors meeting certain UL 1081 motor provisions (e.g. water exposure test) have unique physical features that could be used to distinguish them. If yes, DOE seeks inputs and information on these features.

“Designed and Marketed” or Labelling

In the absence of identifiable physical features, DOE could rely upon the **manufacturer declaration** that a motor is **“designed and marketed”** for use in **DPPP applications**.

- When distributed in commerce, **the motor is designated and marketed solely for that application**, with the designation on the packaging and all publicly available documents (e.g., product literature, catalogs, and packaging labels).
- A manufacturer publishing a list of motor models matched to DPPP models to help their customers identify a DPPP motor is an example of publicly available document.

Alternatively, DOE could rely on **the use of a label** and require that DPPP motors be clearly and permanently labeled *“solely for use in DPPP applications”*

Potential Scope Definition

A DPPP motor means an electric motor that:

1. Is a single-phase motor;
2. Is a capacitor start capacitor run, capacitor start induction run, permanent split capacitor, or electronically commutated motor;
3. Has a nominal motor horsepower equal to or greater than 1/3 hp and equal to or less than 5 hp;
4. Has a NEMA Frame: NEMA 48 or 56 (or IEC equivalent);
5. Has a TEFC or ODP enclosure;
6. Has a Class B insulation (NEMA MG1);
7. Has a Square or C Flange mounting;
8. Has a keyed or threaded shaft;
9. Passes the water exposure test in section 40 of UL 1081; and
10. Is designed and marketed for use in DPPP applications.

Issue Box: DOE seeks inputs and comments on the potential scope definition considered for this rulemaking. Specifically, DOE seeks feedback on whether all listed characteristics are necessary to appropriately capture the DPPP motors considered for this rulemaking (e.g. motor nominal horsepower limits). DOE also seeks inputs and comments on whether any additional characteristics must be added.

Potential DPPP Motor Equipment Classes

DOE divides the equipment into **equipment classes** by the **type of energy used**, by **capacity**, or by other **performance-related features** that justify different standards.

- In making a determination whether a performance-related feature justifies a different standard, DOE must consider factors such as the **utility** of the feature to the consumer and other factors that may be appropriate (42 U.S.C. 6295(q) and 6316(a))

DPPP Equipment Class	Likely Motor Improvements Required to meet DPPP Standards
Standard-Size Self-Priming Pool Filter Pumps	Most variable speed motors
Small-Size Self-Priming Pool Filter Pumps	1-speed, high efficiency motor
Non-self-priming pool filter pumps	1-speed, mid-efficiency motor
Pressure cleaner booster pumps	1-speed, mid-efficiency motor
Integral Sand Filter Pool Pumps	None
Integral Cartridge Filter Pool Pump	None

Potential DPPP Motor Equipment Classes

DOE's preliminary findings show that:

- **Self-priming pool filter pump and pressure cleaner booster pump motors**

  These are essentially interchangeable. Typically NEMA 56-frame size, Square or C Flange mounting. Small-size self-priming motors are typically under 1 horsepower.

- **Non-self priming filter pump motors**

  Non-self priming pumps are typically used in above-ground applications and are less likely to be repaired (user typically will buy a new pump and motor). Typically NEMA 48-frame size, C Flange mounting.

Issue Box: DOE seeks comment and input on how to distinguish DPPP motors depending on the DPPP equipment class they are used in, based on unique physical characteristics. DOE requests information on whether DPPP motors can be used with any variety of DPPP or if they can be identified for a unique DPPP application.

Issue Box: DOE seeks input on whether NEMA frame size could be used to differentiate motors used in self-priming (NEMA 56) and non-self priming DPPP (NEMA 48). DOE seeks input on whether a 1 hp nominal horsepower limit could be used to differentiate motors in small and standard-size self-priming DPPP.

Note: The California Energy Commission proposed to rely on a "designed and marketed" approach.

Potential DPPP Motor Equipment Classes Options

Option	Benefits	Drawbacks	Resulting classes
1. Combination: Physical characteristics and (a) "designed and marketed" or (b) labelling.	• Separate equipment classes for SPP and NSP based on NEMA frame size • Separate equipment classes for standard-size SPP and small-size SPP based on horsepower	• Relies on manufacturer declaration to separate PCBP, ISFPP, and ICFP	1. Standard-Size SPP 2. Small-Size SPP 3. NSPP 4. PCBP 5. ISFPP 6. ICPFP
2. All motors under one equipment class	• Does not require to distinguish DPPP motors by application	• All DPPP motors would be subject to the same potential standard	1. DPPP motor
3. Focus on SPP motors	• SPP is the majority of the replacement market	• Relies on manufacturer declaration to separate SPP from PCBP, ISFPP, and ICPFP	1. Standard-Size SPP 2. Small-Size SPP

Issue Box: DOE seeks comment and input on the benefits and drawbacks of the different equipment class options presented. DOE seeks comment on which DPPP motor equipment class option DOE should consider and why.

* SPP: self-priming pool filter pump, NSPP: non-self-priming pool filter pump, PCBP pressure cleaner booster pump; ISFPP: integral sand filter pool-pump; ICFPP: integral cartridge filter pool-pump

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Metric Overview

The objective of a **metric**

- Be objectively measurable.
- Be representative of the energy use or efficiency of the equipment.
- Differentiate performance among DPPP motor models.
- Compare the efficiency of a given DPPP motor model to a minimum standard level.
- Inform purchasing decisions.

DOE limitations on setting metric

- Must describe energy efficiency or energy use for a covered products.
- Must be a single descriptor (i.e., **either prescriptive- *or* performance-based**)

DPPP motor specific objective

- Capture savings from speed controls in order to compare motors of different speed capabilities
- Capture savings from efficient operation in order to compare motors of different efficiency

Motor Efficiency

Efficiency has drawbacks in the pool pump application.

- Motor efficiency is the metric used by the motor industry.
- Motor efficiency allows differentiating performance within motors of the same speed capability.
- Motor efficiency describes power conversion and does not account for energy savings associated with reduced speed operation.
- Reduction of flow by 50% results in an 88% reduction in power [ideal].
  - Reduction of flow (via reduced motor speed) saves energy.
  - Efficiency (even weighted efficiency) does not capture this savings.
- The motor efficiency test procedure is given in Subpart X to 10 CFR 431.

Motor	Industry Standard
Single Phase	IEEE 114-2010 or CSA C747-09
Polyphase (≤ 1 hp)	IEEE 112-2004 (Method A) or CSA 747-09
Polyphase (> 1 hp)	IEEE 112-2004 (Method B) or CSA 390-10

MWEF

MWEF allows for close alignment with DPPP standards.

- MWEF is a weighted ratio of flow to motor input power.
  - Flow is estimated using motor output measurements and pump assumptions.
  - Low- and high- load point measurements for multi- and variable-speed motors.
- Motor load points and weightings would be based on DPPP test points and weightings.
- Hydraulic efficiency varies by capacity (hhp), speed, and pump design.
- For testing, MWEF references the same industry standards as motor efficiency, but uses different load points to support the MWEF formula.
  - Only CSA C747-09 provides testing instructions for variable-speed motors.

$$MWEF = \frac{\sum_i^n \left(\mathrm{w_i} \times \sqrt[3]{T_i \times N_i \times \eta_{pump} \times 91.8} \times 60 \right)}{\sum_i^n (\mathrm{w_i} \times P_i)}$$

i = load point - low speed or high speed
w = weighting factor
P = power input, in kilowatts
T = Torque, in lb-ft
N = motor speed, in rotations per minute, RPM
η_{pump} *= assumed pump efficiency*
MWEF= Motor Weighted Energy Factor

Request for Comment

Issue Box: DOE requests comment on the advantages and disadvantages of motor efficiency, MWEF, or any other metric for DPPP motors. DOE also requests comment on referencing both IEEE and CSA standards for measurements needed for MWEF.

Issue Box: DOE requests comment on motor load points and weightings.

Issue Box: DOE requests comment on potential methods for specifying hydraulic efficiency, including data and other information relating to the relationship between hydraulic efficiency and capacity or motor speed.

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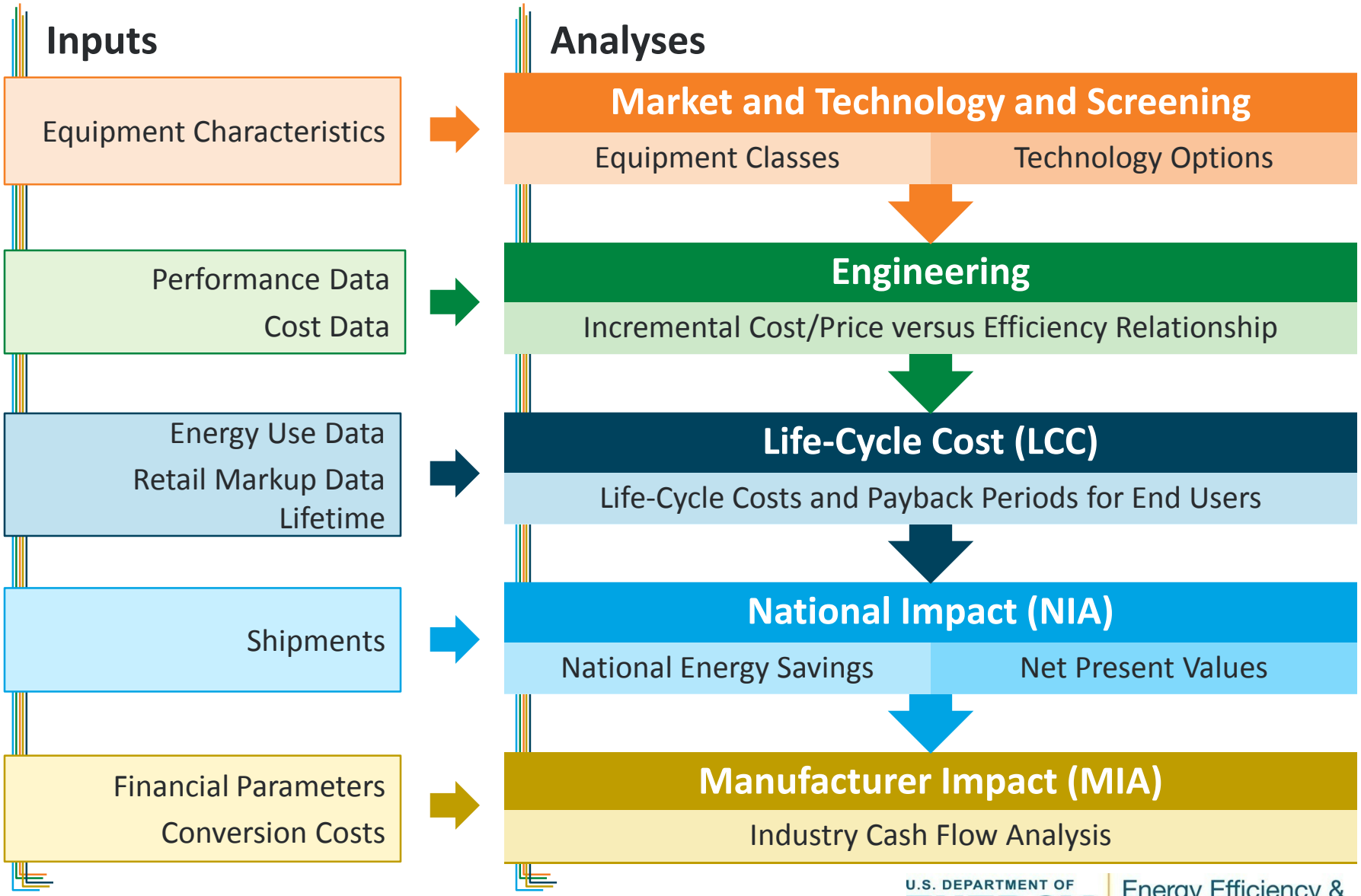
Motivation

The Energy Policy and Conservation Act, 42 U.S.C. 6291 *et seq*., sets forth requirements for new or amended standards:

> Any new or amended energy conservation standard for any type (or class) of covered product shall be designed to:
>
> (1) achieve the ***maximum improvement in energy efficiency,*** that is ***technologically feasible*** and ***economically justified***; and
>
> (2) result in ***significant conservation of energy***.
>
> (42 U.S.C. 6295(o)(2)(A) and (o)(3)B); 42 U.S.C. 6316(a))

- DOE conducts a series of analyses to satisfy these requirements.
- The following slide will summarize these analyses.

Overview of Required DOE Analyses



Performance and Cost Data

Performance and cost data form the basis of the engineering analysis.

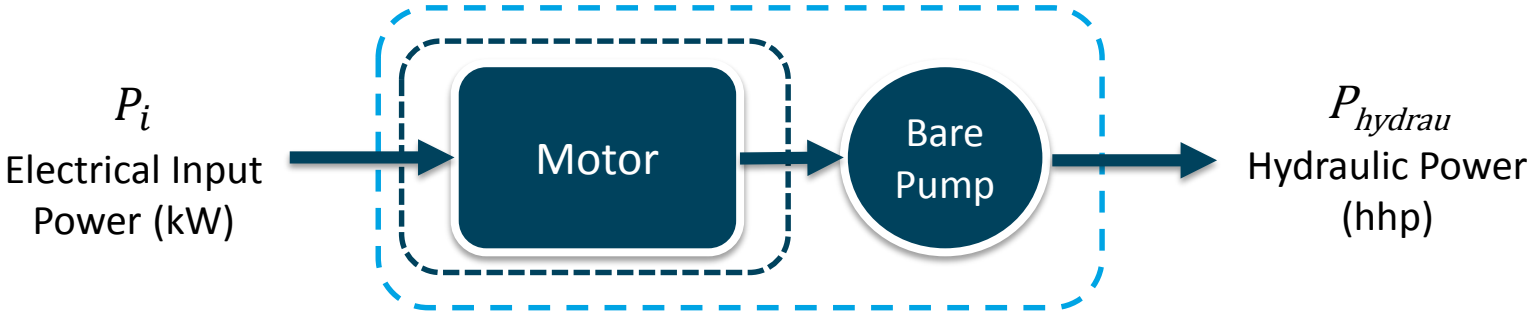
- The DPPP Rulemaking established the Pool Pump Performance Database.
  - Includes current and archived records of pool pump and pool pump motor performance data.
  - Collected from databases maintained by the CEC, APSP, and the Energy Star program.
  - DOE added records to the database based on pump data published in manufacturer specification sheets.
- DOE could utilize retail price data collected for motors during the DPPP Rulemaking process.

Issue Box: DOE requests comment on the potential methods for establishing performance and cost data.

Energy Use

The unit energy consumption (UEC) calculation is similar to the energy use calculation performed for dedicated-purpose pool pumps.

DOE is considering using the same energy use inputs as in the DPPP DFR analysis (operating hours, pool volume, …)



i = pool pump operating speed mode (low speed or high speed for two speed and variable speed pool pumps)
Q_i = pool pump flow rate, in gallons/minute
P_i = motor power consumption for mode i, in watts
MEF_i = Motor Energy Factor for mode i, in gallon/Wh

$$UEC_{annual} = UEC_{day} \times annual\ days\ of\ operation$$

$$UEC_{day} = \sum_i \left(P_i \times daily\ operating\ hours_i\right)$$

$$UEC_{day} = \sum_i \left(\frac{Q_i \times 60 \times daily\ operating\ hours_i}{MEF_i}\right)$$

Retail Markup Data

In the DPPP DFR analysis, DOE identified different distribution channels for DPPPs and for replacement DPPP motors and calculated markups at each point of the distribution channel.

- DOE plans on using similar channels and markups for both motors sold in a pool pump and for motors sold as replacement motors

Issue Box: DOE seeks input and information regarding the distribution channels for DPPP motors. Specifically, DOE is requesting feedback on the information used in the DPPP DFR TSD to described these channels.

Lifetime

DPPP Variety	DPPP Average Lifetime (years)								
	Single Speed			Dual Speed			Variable Speed		
	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max
Self-priming filter pump	2	7	13	2	7	13	3	7	13
Non-self-priming filter pump	2	5	9	2	5	9	3	5	9
Pressure cleaner booster pump	2	5	10	-	-	-	3	5	10

Source: DPPP DFR TSD

In the DPPP DFR analysis:

- Motor replacement only occurred in pumps with a lifetime greater than the average lifetime.
- Motor lifetime was assumed to be shorter than DPPP lifetime

Issue Box: DOE seeks data on DPPP motor lifetime.

Shipments

2015 Shipments by Dedicated-Purpose Pool Pump Variety (units)

DPPP Variety	DPPP motors sold in Pool Pumps (1:1)	Replacement Motors (1:3)	Annual Growth Rate	
			DPPP	Repl.
Standard-Size Self-Priming Pool Filter Pumps	616,320	205,440	3.1%	?
Small-Size Self-Priming Pool Filter Pumps	80,000	26,667	3.1%	?
Non-self-priming pool filter Pumps	372,857	124,286	3.1%	?
Pressure cleaner booster Pumps	128,571	42,857	1.4%	?
Integral Cartridge Filter Pool Pump	914,205	-	2.0%	-
Integral Sand Filter Pool Pump	141,270	-	2.0%	-
Total	**2,253,223**	**399,249**	-	-

Source: DPPP DFR TSD

Preliminary total estimate - 2015 DPPP motor shipments:

$$2,253,223 + 399,249 = \textbf{2,652,472 units}$$

Issue Box: DOE seeks historical and current shipments data on DPPP motors (including replacement DPPP motors) considered in the scope of this rulemaking. DOE requests information on how much shipments are expected to change in the next 5, 10, 30 years.

*Assuming DPPP replacement motor shipments represent 1/3 of DPPP shipments based on information from the California Energy Commission DRAFT STAFF REPORT, *Second Revised Analysis of Efficiency Standards for Pool Pumps and Motors, and Spas*, July 12,2017, Docket number 5-AAER-02

Manufacturer Markups

DOE calculates manufacturer markups as part of the MIA.

- DOE typically gathers this information from publicly traded companies or previous rulemakings.

Rulemaking Name	Product Class	Manufacturer Markups
2014 Electric Motors Rulemaking	Greater than 5 HP	1.45
	Less than 5 HP	1.37
2017 DPPP Rulemaking	Self Priming / Waterfall	1.46
	Non-Self Priming / Pressure Cleaner Booster	1.35
	Cartridge Filter	1.27

Issue Box: DOE seeks information on whether motor manufacturers vary manufacturer markups based on HP or based the motor's end use application? Or if a single manufacturer markup should be used for all motors?

Conversion Costs

DOE calculates conversion costs as part of the MIA.

- There are two types of conversion costs; capital conversion costs and product conversion costs.
  - Capital conversion costs are investments in property, plant, and equipment necessary to adapt, change, or expand existing tooling equipment.
  - Product conversion costs are investments in research, development, testing, marketing, certification, and other non-capitalized costs

Issue Box: DOE seeks information on whether motor manufacturers would incur any conversion costs due to this DPPP motor rulemaking (above and beyond the effect of the DPPP rulemaking). How does this change if DPPP motors standards set by this rulemaking do or do not align with the standards set by the DPPP rulemaking?

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Closing Remarks

Meeting participants are invited to provide closing remarks or statements at this time.

How to Submit Written Comments

In all correspondence, please refer to:

Title	**Test Procedure for Small Electric Motors and Electric Motors**
Docket Number:	EERE-2017-BT-STD-0048
Regulation Identification Number (RIN):	1904-AD29
Email:	SmallElectricMotors2017TP0047@ee.doe.gov
Comments Due:	**August 30, 2017, 11:59 PM ET**

Postal:
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