FLUIDRA

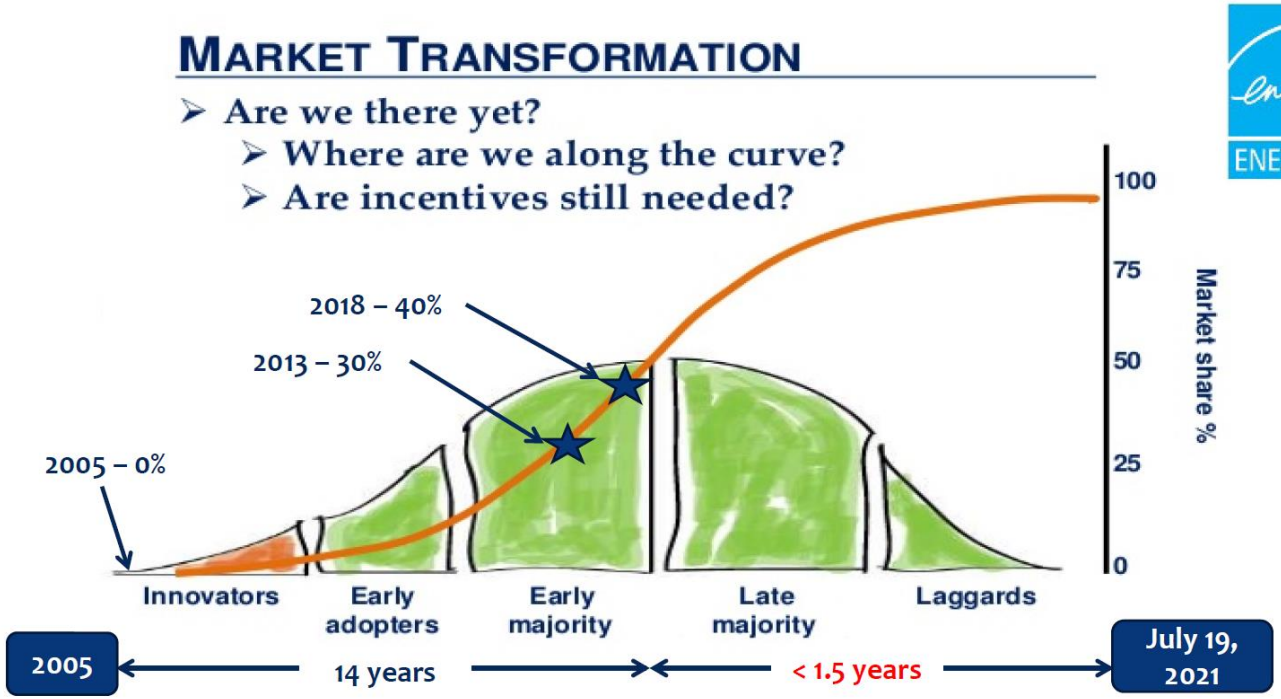
Dedicated Purpose Pool Pump Regulations

- DP3 / DPPP
- Effective July 19, 2021

AGENDA
DEDICATED PURPOSE POOL PUMP REGULATIONS (DP3)

1. **Single-Speed and Two-Speed / Variable-Speed Pump Market Mix**
2. **Dedicated Purpose Pool Pump Regulation (DP3)**
   - What it Means
   - DP3 Terminology
   - Equipment Impacted
   - Requirements by Equipment Class
   - Timing and Industry Impact Summary
3. **Motor Rule Amendments – DOE and CEC**
4. **Benefits to Consumer**
5. **Jandy Compliant Pumps**

VARIABLE-SPEED PUMP MARKET PENETRATION



ENERGY STAR - 40% Market Penetration in 2018

DEDICATED PURPOSE POOL PUMP REGULATIONS (DP3)

Federal Minimum Efficiency Regulations

- Impacts *all* pumps up to ~ 5 HP*, in-ground and above-ground, residential and commercial
- Enforcement starts **July 19, 2021**

* Actual limit is less than 2.5 **hydraulic horsepower (HHP)**; HHP is proportional to pump flow

POOL & HOT TUB ALLIANCE

What DP3 does do:

- DP3 sets minimum energy efficiency standards for all pumps up to 2.5 hydraulic horsepower (~5 HP)
- WEF (Weighted Energy Factor) is the measurement
- HHP (Hydraulic Horsepower) determines the minimum WEF requirement

What DP3 does not do:

- DP3 does NOT require all pumps to be variable-speed.
- However, DP3 does make it difficult for many single-speed or 2-speed pumps to meet the requirements.

DP3 TERMINOLOGY

New Terms

- **Hydraulic Horsepower (HHP)**
  - HHP is directly proportional to pump flow
  - Used to size pumps instead of motor horsepower

- **Weighted Energy Factor (WEF)**
  - Based on flow divided by power consumption
    - Higher is better
  - Used to compare energy efficiency of pumps

$$Efficiency = \frac{Output}{Input} = \frac{Bang}{Buck}$$

POOL & HOT TUB ALLIANCE

Hydraulic Horsepower (HHP):

- Standardizes how pumps are compared in terms in ***water*** horsepower. This is not the equivalent of ***motor*** horsepower.
- A higher HHP means more water is being pumped and higher head pressures are being generated

Weighted Energy Factor (WEF):

- Standardizes pump efficiency the same way MPG standardized motor vehicles
- Measured in gallons of water pumped per kWh of energy use
- A pump with a WEF score of 6.373 means the pump can move 6,373 gallons of water while consuming 1.0 kWh of energy

WEF IS SIMILAR TO MPG

- **WEF is to the pool pump as MPG is to a gasoline motorized vehicle**
  - MPG provides guidance for how many miles a vehicle can drive per 1 gallon of gasoline usage
  - WEF provides guidance for how many gallons of water the pool pump can pump per 1 kWh of energy usage
- **The higher the WEF score, the more gallons of water pumped per kWh**
- **WEF is required to be published on the pump rating label on or before July 19, 2021**

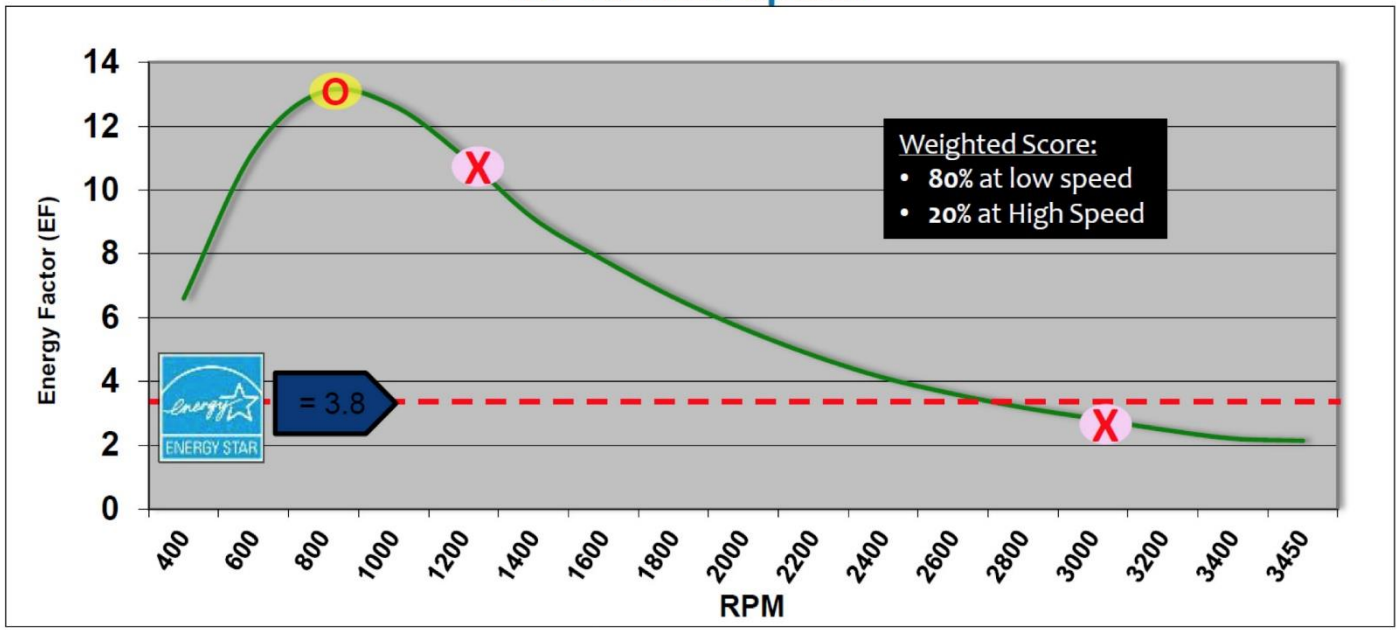
Important:
- WEF is only one factor to consider in pump selection
- Pumps still need to be sized properly – consider the application!

MPG = Miles Driven per Gallon of Gas

WEF = Gallons of Water Pumped per 1 kWh of Energy

WEF ASSUMPTION FOR VARIABLE-SPEED PUMPS

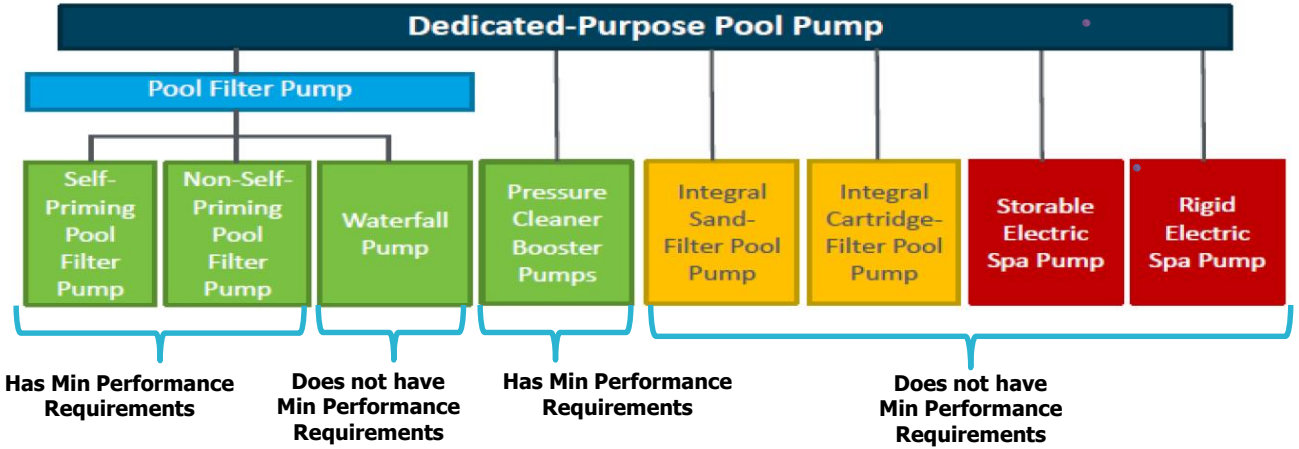
Energy Factor vs. Weighted Energy Factor for Variable-Speed



O = Original ENERGY STAR - EF X = DOE & Updated ENERGY STAR - WEF

DOE EQUIPMENT CLASSES

- **Per DOE, Equipment Classes <u>cannot</u> be based on Application**
  - For example, cannot be “In-Ground” vs. “Above-Ground”
  - No difference in requirements between residential vs. commercial
- Must be based on design, physical features, performance characteristics, etc.



MINIMUM PERFORMANCE REQUIREMENTS EQUIPMENT CLASSES

Self-Priming Pumps (Typical In-Ground Pool Pumps)

- A self-priming pump is capable of 5 feet or more of lift in 10 minutes
- Two size categories
  - Small: ≤ 0.711 HHP (~1.2 THP)
  - Large: ≥ 0.711 HHP to ≤ 2.5 HHP (~1.2 THP to ~5.0 THP)
  - Self-Priming Pumps > 2.5 HHP are exempt
- Most single-speed pumps with a Total Motor HP above ~1.0 THP will not meet this requirement

Non Self-Priming Pumps (Typical Above-Ground Pool Pumps)

- A non-self priming pump is **not** capable of 5 feet of lift in 10 minutes
- Pass/Fail criteria is lower than self-priming pumps – many single-speed pumps will pass

Pressure Cleaner Booster Pumps

- Most booster pumps will pass

OTHER EQUIPMENT CLASSES – NO PERFORMANCE REQUIREMENTS

Waterfall Pumps

- Maximum head ≤ 30 feet
- Maximum speed ≤ 1,800 RPM
- Based on the pump, not the installation or application

Integral Sand and Cartridge Filter Pool Pumps

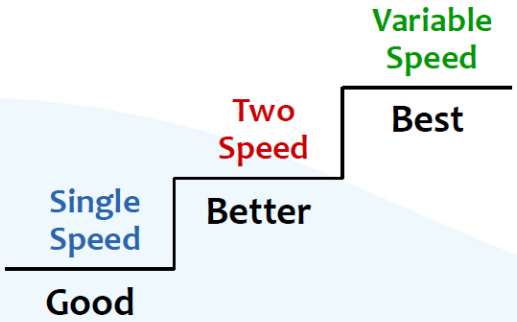
- "Integral" defined as a pump that cannot be plumbed to bypass the filter
- Used with storable pool equipment
- ***Has a prescriptive requirement that it must include a timer that automatically turns the pump off after 10 hours***

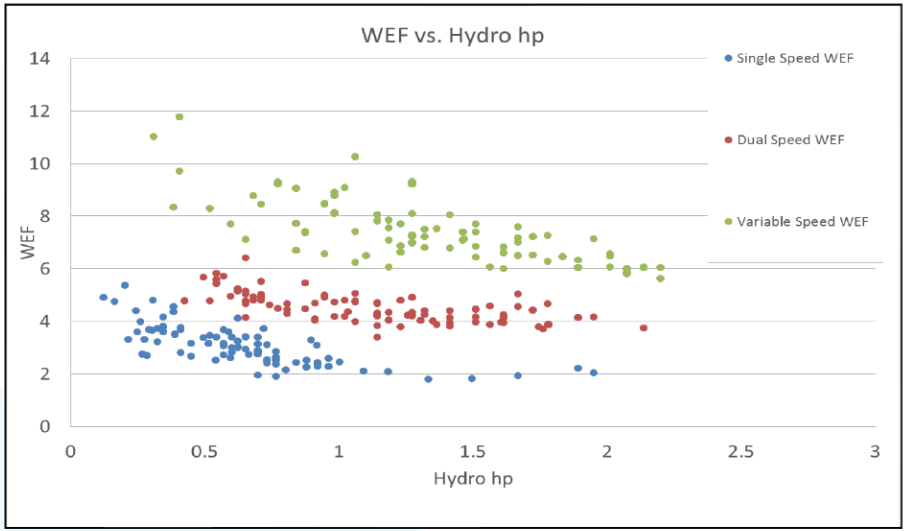
Portable Electric Spa Pumps

Pumps with 3-Phase Motors

SELF-PRIMING PUMPS WEF VS. HHP
Efficiency Metric

- Based on Weighted Energy Factor (WEF):





Self Priming Pumps

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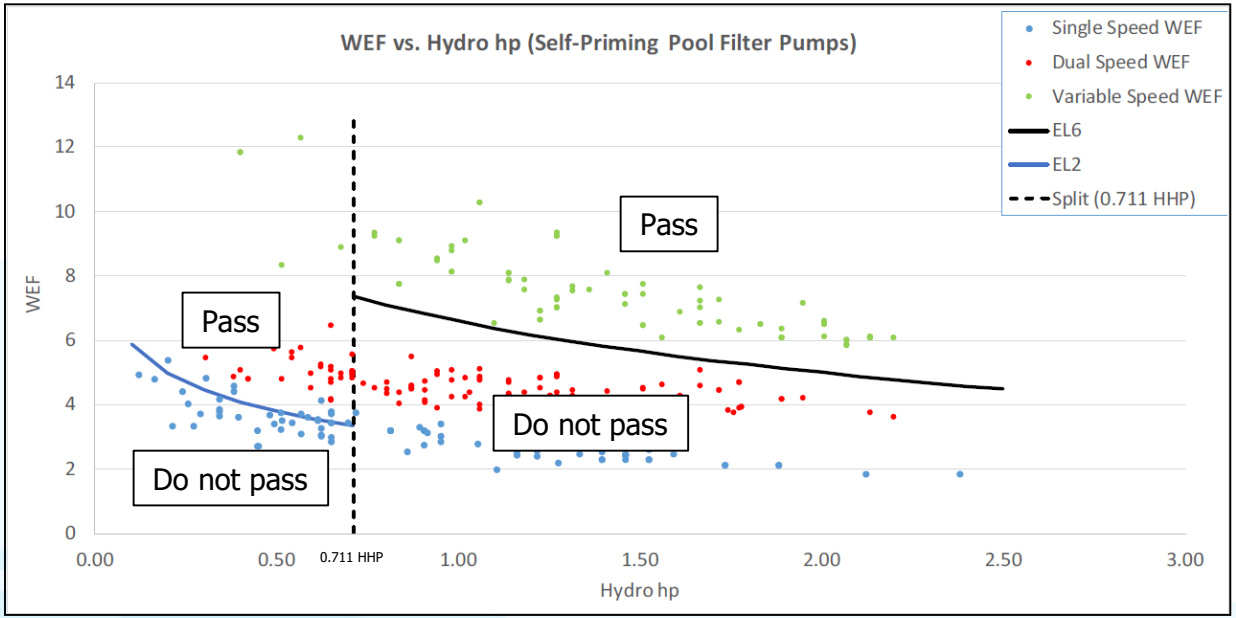
SELF-PRIMING PUMPS WEF VS. HHP

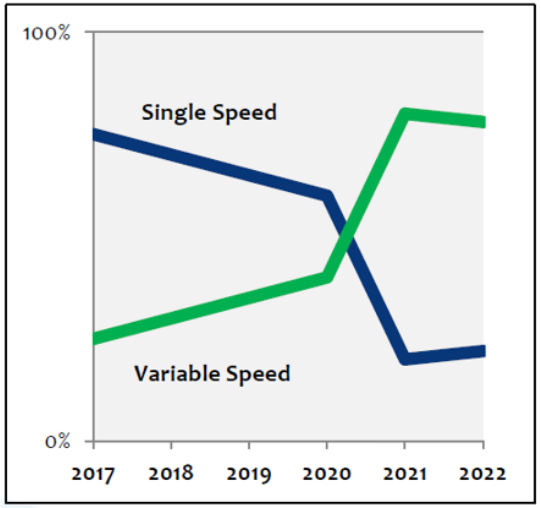
Efficiency Levels - Final

- Efficiency Levels are based on equations where WEF is a function of HHP (flow)



Self Priming Pumps

POOL & HOT TUB ALLIANCE



Market Mix – Self-Priming Pumps

IMPACT TO THE INDUSTRY

Self-Priming Pumps ("In-Ground")

- Variable-Speed will become most common
- Some smaller single-speed pumps will still be available
  - Some of the smaller single-speed pumps may require design changes to become compliant (motor and/or wet-end changes)

Non Self-Priming Pumps ("Above-Ground")

- Single-Speed will remain the most common

Pressure Cleaner Booster Pumps

- Single-Speed will remain the most common

TIMING

Regulation enforced July 19, 2021

- Based on date of final pump assembly
- No product has to be returned
- Allows for complete purge of “pre-regulation” product from the supply chain
- Manufacturer bears total responsibility for product compliance

If it’s not compliant, it can’t be manufactured or imported.

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MOTOR RULES - IMPACT TO BE DETERMINED

DOE Supplementary Motor Rule

- National Impact
- Draft proposal restricts the sale of non-variable-speed motors with THP ≥ 1.15
- Cannot gauge full impact until finalized

CEC Motor Replacement Rule

- California Energy Commission (Specific to California)
- Draft proposal states any replacement motor with a THP rating ≥ 0.5 THP must be variable-speed and must meet minimum motor efficiency requirements
- Cannot gauge full impact until finalized
- Unclear if CEC will defer to the federal motor rule once finalized

CALIFORNIA ENERGY COMMISSION

VARIABLE-SPEED PUMPS – CONSUMER BENEFITS

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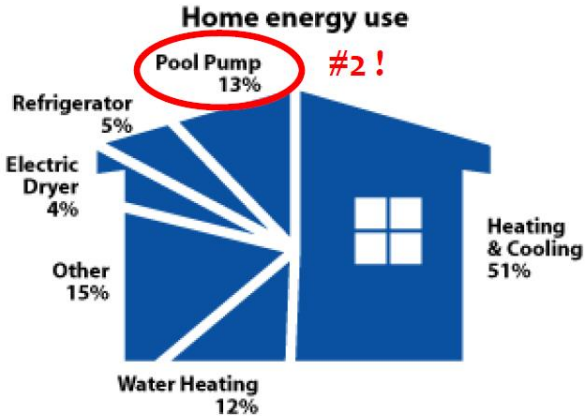
LOWER ELECTRICAL COSTS

Sell the Benefits

Save energy… and money!



ENERGY STAR

POOL & HOT TUB ALLIANCE

CORE BENEFITS

Key Concept – Slower is better!

- Reduces energy cost (by as much as 90%)
- Enhanced equipment performance
  - Filtration - 30 micron → 15 micron
  - Reduced equipment stress
- Quiet as a whisper
- Longer equipment life
- Protects itself from damage
- Longer filter cycles keep chemicals in circulation longer
- Customize and change water features

All are Customer focused benefits!

POOL & HOT TUB ALLIANCE

JANDY ENERGY SAVINGS CALCULATOR

$707.50
TOTAL SAVINGS PER YEAR
Reset to Default

Enter your pool information

POOL SIZE (GALLONS)
20,000 gallons
Help me calculate my pool size

ELECTRICITY RATE
$0.164 per kWh
Enter zip code to find electricity rate

LENGTH OF POOL SEASON (MONTHS)
12 months

	 Single-Speed Pump: 2 HP Full Rated	 Variable-Speed Pump: Jandy 2.2 HP
Pump Run Time (hrs)	7 hours	14 hours
Pump Speed	3,450 RPM	1,750 RPM
Gallons per Minute	93.8 GPM	46.3 GPM
Turnovers per Day	1.97	1.94
Daily Cost	$2.66	$0.73
Yearly Cost	$972.37	$264.87

Visit Jandy.com to use our interactive energy savings calculator:

- https://www.jandy.com/en/calculators/pool-pump-savings

JANDY COMPLIANT PUMPS

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JANDY VARIABLE-SPEED PUMPS

PRICE

VS FloPro 0.85 HP (115v)
VS FloPro 1.65 HP (230v)

VS FloPro 1.85 HP
(115v/230v, 2 Aux Relays)

VS FloPro 2.7 HP
(115v/230v, 2 Aux Relays)

VS PlusHP 2.7 HP
(115v/230v, 2 Aux Relays)

ePump 2.2 HP
(230v, 1 Aux Relay)

ePump 2.7 HP
(230v, 1 Aux Relay)

All Jandy Variable-Speed Pumps are Compliant

Single-Speed and Two-Speed Pump SKU list will be published once DOE and CEC motor rules are finalized

PERFORMANCE & FEATURES

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THANK YOU

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