

## DOCKETED

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California Energy Commission

# Draft Portable Electric Spa Standards

August 3, 2017

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# Presentation Agenda

- Purpose
- Staff Updates
- Staff Proposal
- Staff Analysis
  - Technical Feasibility
  - Cost Effectiveness
  - Statewide Energy Savings
  - Inflatable Spas
- Next Steps
- Discussion Topics



# Purpose

- Review revised proposal
- Staff seeks public comments on the revised proposal
- The revised staff report contains the proposal details

[http://docketpublic.energy.ca.gov/PublicDocuments/15-AAER-02/TN220120\\_20170712T095947\\_Second\\_Revised\\_Analysis\\_of\\_Efficiency\\_Standards\\_for\\_Pool\\_Pumps.pdf](http://docketpublic.energy.ca.gov/PublicDocuments/15-AAER-02/TN220120_20170712T095947_Second_Revised_Analysis_of_Efficiency_Standards_for_Pool_Pumps.pdf)



## Staff Updates

- Unchanged items from previous staff proposal
  - Portable electric spa definition remains the same
  - Define exercise spas, combination spas, and standby mode
  - Apply the same proposed standard for all types of portable electric spas



# Staff Updates

- Changes from previous staff proposal
  - Adopt the ANSI/APSP/ICC-14 (2014) test method with a clarification for combination spas
  - Defined rated capacity, rated volume, fill volume
  - New data submittal requirements (Table X)
  - Updated range of performance bar on label
  - Few edits to the wording in the label
  - Updated labeling requirement for combination spas



# Staff Proposal - Scope

Portable electric spas would maintain the existing broad definition that includes traditional, storable/inflatable, flexible/soft, exercise/swim, and combination spas.



Storable



Storable/Inflatable



Flexible/Soft



Traditional



Exercise/  
Swim



Combo

Portable Electric Spa means “a factory-built electric spa or hot tub, supplied with equipment for heating and circulating water.”

Sources: Jacuzzi Spas, Lifesmart, Sofftub, Inc., Coleman SaluSpa, Comfort Line Products, Michael Phelps Swim Spas, Grand Canyon Dual Zone Swim Spa



## Staff Proposal - Definitions

### Proposed Additional Definitions:

- “Exercise spa” (also known as a “swim spa”) means a portable electric spa designed to produce a water flow intended for water therapy or recreational physical activity, including, but not limited to, swimming in place.
- “Combination spa” (also known as a “combo spa”) means an exercise spa with multiple reservoirs of water capable of heating each body of water.
- “Standby mode” means that only the default settings as shipped by the manufacturer are enabled, except water temperature, which may be adjusted to meet the test conditions. No manual operations are enabled (as defined in ANSI/APSP/ICC-14 2014).





# Staff Proposal - Definitions

### Proposed Additional Definitions:

- “Rated capacity” means the number of people capable of fitting in a portable electric spa as specified by the manufacturer.
- “Rated volume” means the water capacity of the portable electric spa, in gallons, as specified by the manufacturer on the spa, on the spa packaging, or the spa marketing materials.
- “Fill volume” means the water capacity of the portable electric spa, in gallons, at the halfway point between the bottom of the skimmer opening and the top of the spa. In the absence of a skimmer, the water capacity is six inches below the top of the spa.



# Staff Proposal - Test Method

## Proposed Test Method:

- Adopt ANSI/APSP/ICC-14 (2014) as the test method, with the following clarification:
  - For combination spas, each reservoir will be powered on simultaneously and heated to the appropriate temperature, according to the test procedure, for the entire duration of the test.



# Staff Proposal - Standby Power Standard

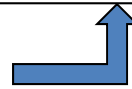
- Current maximum standard: For all portable electric spas manufactured on or after January 1, 2006, and before **January 1, 2019**:

$$5 \times (Volume)^{\frac{2}{3}}$$

- Proposed maximum standard: For all portable electric spas, including swim spas, manufactured on or after **January 1, 2019**:

$$\left( 3.75 \times (Volume)^{\frac{2}{3}} \right) + 40$$

Updated for energy savings



Relief for smaller volume spas

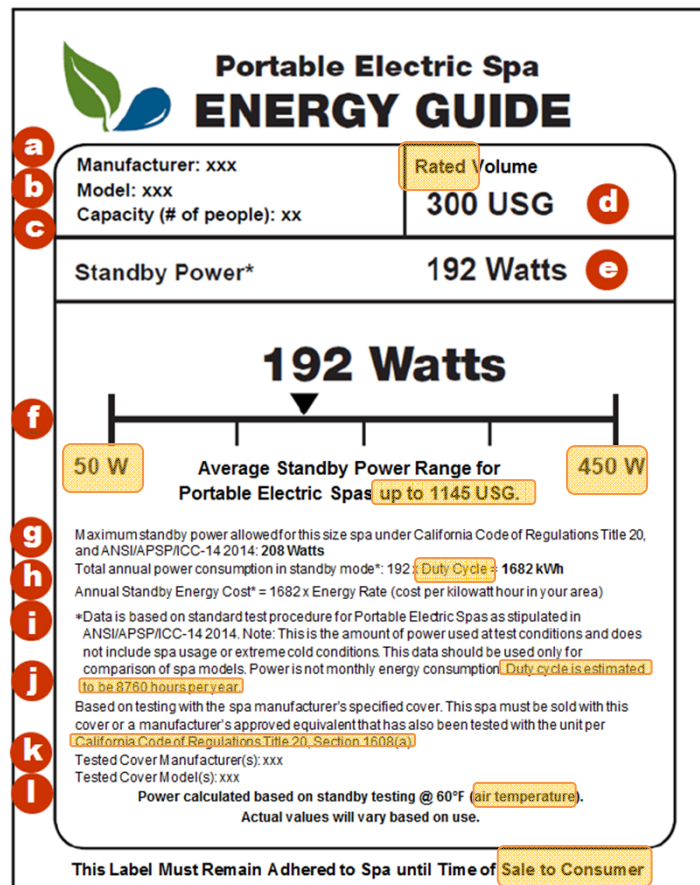




## Staff Proposal - Label Requirement

- Follow label template as in ANSI/APSP/ICC-14 (2014) with staff modifications.
- Each reservoir or spa side shall be labeled for combination spas.
- The label shall display the manufacturer and model number of the spa cover(s) used during testing and allowed for sale with the unit in accordance with CCR, Title 20, Section 1608(a).
- Label must be removed by only the consumer.

### ANSI/APSP/ICC-14 (2014)

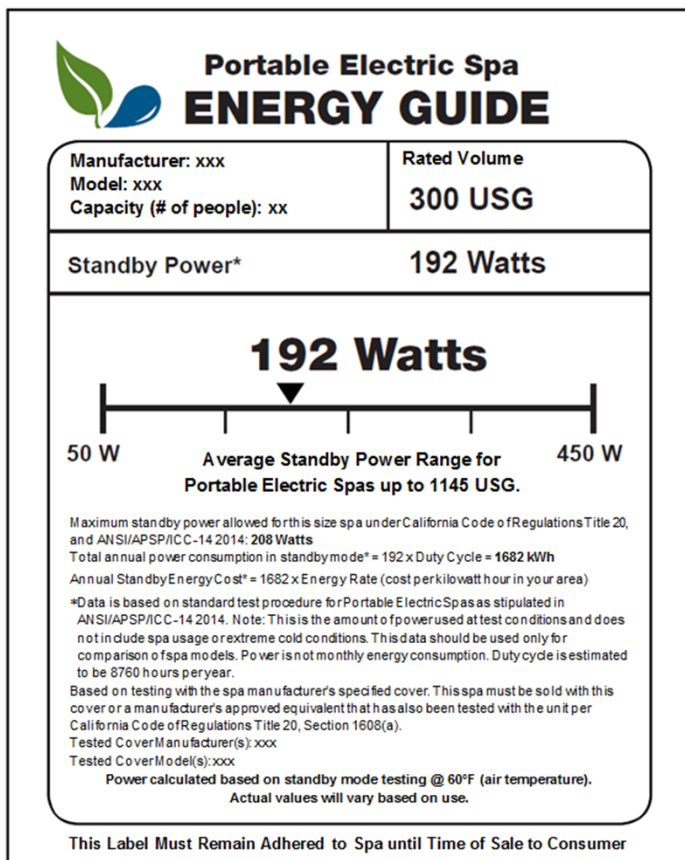




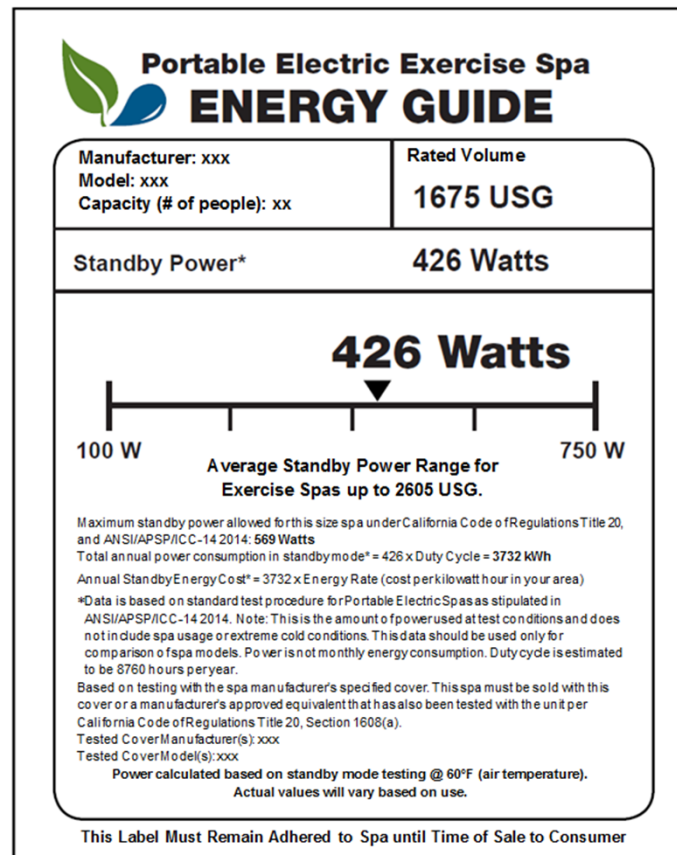
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## Staff Proposal – Label Template

Example of Portable Spa or Combo Spa - Spa Portion Label



Example of Exercise Spa or Combo Spa - Swim Portion Label





# Staff Proposal – Data Submittal Requirements (MAEDBS)

## Proposed Changes to Table X, Section 1606

The manufacturer shall identify the spa cover test model number during certification.

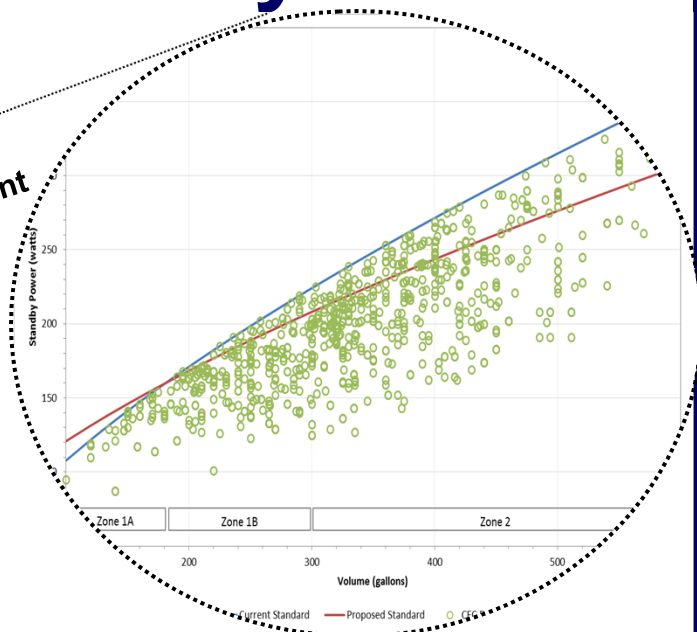
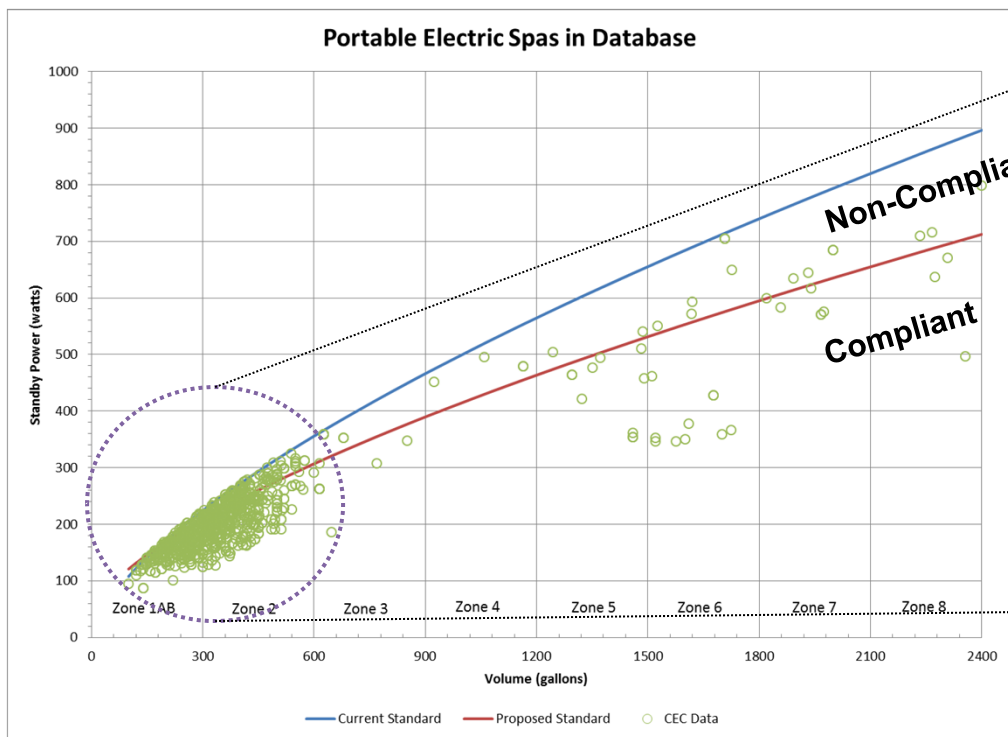
For models tested with more than one cover:

- only the covers that result in a passed standby test may be sold with the unit, and
- only the cover that yields the maximum standby result shall represent the model on the label, and
- all unit and spa cover combinations shall be certified to MAEDBS.

Appliance	Required Information	Permissible Answers
G Portable Electric Spas	*Spa Type	Portable Electric Spa, Exercise Spa, Combination Spa
	*Tested Spa Cover Model Number	
	Tested Spa Cover Manufacturer	
	Tested Spa Cover Is Insulated	True, False
	Voltage	
	Rated Capacity (number of people)	
	Spa Enclosure Is Fully Insulated	True, False
	Portable Electric Spa Rated Volume (gallons) (for portable electric spas and combination spas only)	
	Exercise Spa Rated Volume (gallons) (for exercise spas and combination spas only)	
	Portable Electric Spa Fill Volume (gallons) (for portable electric spas and combination spas only)	
	Exercise Spa Fill Volume (gallons) (for exercise spas and combination spas only)	
	Portable Electric Spa Normalized Standby Power (watts) (for portable electric spas and combination spas only)	
	Exercise Spa Normalized Standby Power (watts) (for exercise spas and combination spas only)	



# Technical Feasibility



Zone 1A shows modest relief for smaller spas.

Table 1: Compliance Rates

	Zones	Compliant (%)	Non-Compliant (%)
Portable Spas	1AB to 3	79	21
Exercise Spas	4 to 8	58	42
Combo Spas	-	43	57
All Certified Units		77	23



# Technical Feasibility (cont.)

- Increase spa standby performance by:
  - using better shell insulation,
  - improving spa cover designs or insulation materials,
  - incorporating radiant barriers, and
  - Improving the controls.
- Test method and standby power standard are:
  - performance-based and technology-neutral, and
  - accepted by the industry.





# Cost Effectiveness

**Table 2: Weighted Unit Energy Savings and Life-Cycle Costs/Benefits**

	Design Life (years)	Energy Savings (kWh/year)	Life-Cycle Costs (\$/unit) <sup>1,2,3</sup>	Life-Cycle Benefit (\$/unit)	Life-Cycle Benefit/Cost Ratio
Portable Electric Spas	10	307	\$ 100.38	\$ 569	6
Exercise Spas	10	1,426	\$ 230.38	\$ 2,645	11
Combo Spas	10	1,612	\$ 232.50	\$ 2,991	13

<sup>1</sup> 2006 Study by Nadel, deLaski, Eldridge, & Kliesch

<sup>2</sup> Median cost of exercise spa is \$15,000 and median cost for mid-tier spas is \$6,500, resulting in a ratio of 2.3. Source of prices: <http://www.toptenreviews.com/home/outdoor/best-swim-spas/> and <http://www.bullfrogspas.com/blog/how-much-do-hot-tubs-cost/>.

<sup>3</sup> 2014 CASE Report



# Statewide Energy Savings

Table 3: Total Statewide Annual Stock Savings

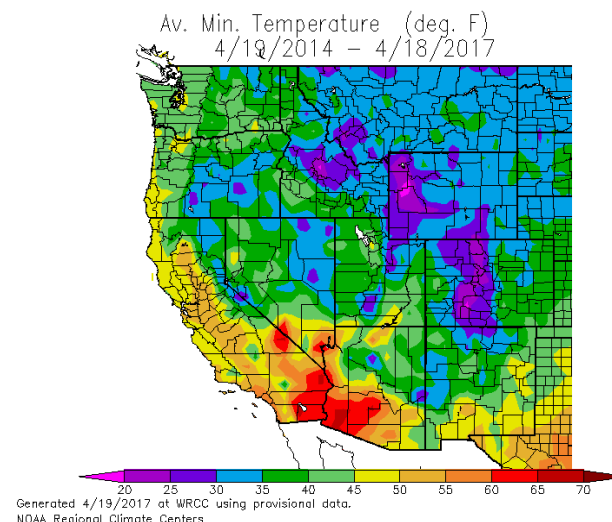
Type	First-Year Savings		Complete Turnover Savings	
	Energy Consumption (GWh/yr)	Savings (\$ Million)	Energy Consumption (GWh/yr)	Savings (\$ Million)
Portable Electric Spas	7.7	1.43	92.79	17.2
Exercise Spas	3.5	0.65	42.25	7.8
Combo Spas	0.8	0.15	9.62	1.8
Total	12.0	2.23	144.7	26.8

The energy savings includes a 5 percent savings from the total compliant energy consumption after full-stock turnover for requiring a label.



# Inflatable Spas

- Inflatable spas are intended to be used seasonally (6-7 warmest months) due to possible damage to the inflatable spa material when outdoor temperatures are below 40°F.
- Docketed test lab report for a model with a capacity of 210 gallons resulted in a normalized standby power of 469 watts and the maximum allowable normalized standby power is 176 watts.
- Water temperature capability: 60°F to 104°F.
- Volume capacity: 130 gallons to more than 260 gallons.



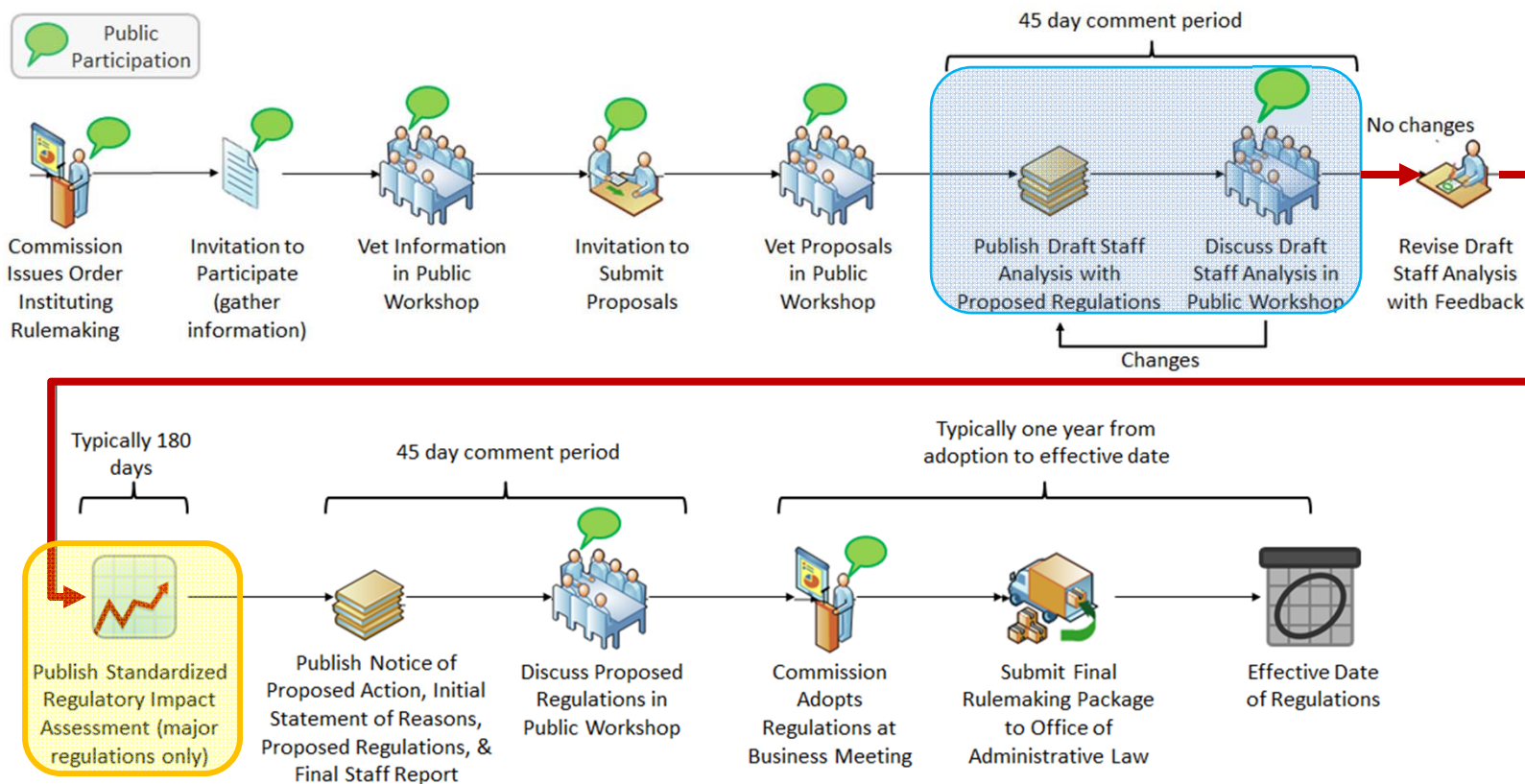
Source: Western Regional Climate Center

Average minimum  
temperature for the past 3  
years as of April 2017.



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## Next Steps





# Discussion Topics

- Do manufacturers see any recent improvement trends in the spa market?
- How are small spa businesses affected by the staff proposal?



# Comments

- **Comments due by 5:00 p.m. on September 1, 2017.**
- To submit electronically:
  - Go to <http://www.energy.ca.gov/appliances/2015-AAER-02/rulemaking/>
  - Click on “Submit eComment”
- To send a hard copy:

California Energy Commission  
Dockets Office, MS-4  
Re: Docket No. 15-AAER-02  
1516 Ninth Street  
Sacramento, CA 95814-5512
- To send a digital copy: [docket@energy.ca.gov](mailto:docket@energy.ca.gov) , include docket number 15-AAER-02 and indicate Pool Pump Motors and Portable Electric Spas in the subject line



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# Thank You!

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