



# ENERGY STAR<sup>®</sup>

## Water Heaters

**Draft 3 Version 2.0  
Stakeholder Meeting  
April 5, 2012**

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# Webinar Goals

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- Highlight key changes in Version 2.0.
- Solicit stakeholder feedback on proposal and outstanding issues.
- Address stakeholder questions about process and/or changes.
- Identify next steps and timeline.

# Key Areas for Discussion

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- Hybrid Units
- POU Electric Units
- Add-On Units
- Whole-home Electric
  - Revised additional qualification requirements
- Retaining Solar Water Heaters
  - Solar Energy Factor replaces Solar Fraction metric

# Revision Drivers

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- Technology Neutrality
- Specific small issues with specification
- Expansion to cover more products

# Technology Neutrality

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- Product Categories
  - Distinguished by Fuel Source
    - Electric
    - Gas
    - Solar
- Distinctions also affected by test methods

# Proposal Summary



Fuel	Product type	Requirements
Electric	Whole home storage	EF $\geq$ 2.0 FHR $\geq$ 50 GPH
Gas	Whole home storage	EF $\geq$ .67 FHR $\geq$ 67 GPH
	Whole home tankless	EF $\geq$ .82, GPM $\geq$ 2.5
	Hybrid	EF $\geq$ 0.75 (units $\leq$ 20 gal volume) TE $\geq$ 0.80 (units $>$ 20 gal) SL $\leq$ 2374 btu/hr * (TE - 0.74)
Solar	Electric or gas backup	SEF $\geq$ 1.8 for electric backup SEF $\geq$ 1.2 for gas backup

# Hybrid Units



- Scope
  - Hybrid water heaters with input rates above 75,000 btu per hour and a capacity of at least 2 gallons of water
  - Units sold for residential application
- Additional option for residential consumers
- Include advantages of both instantaneous and storage
- Warranty and safety requirements similar to other residential water heaters
- FVIR protection requirement for EPACT hybrid units

# FVIR Requirements

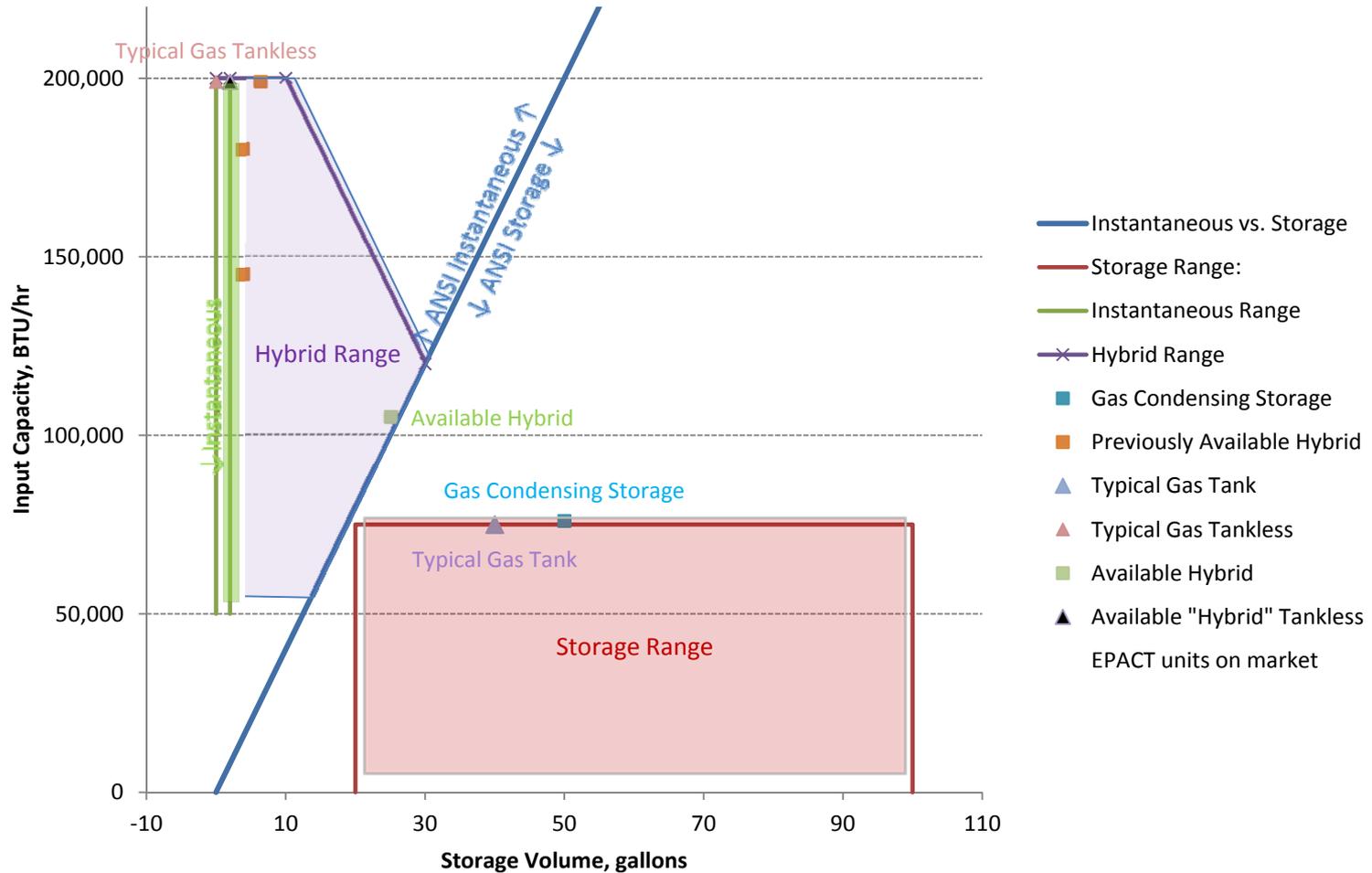


- EPA follows the ANSI safety standard and FVIR therefore required only for NAECA covered units in the storage range.
- EPA has two concerns:
  1. Safety - EPA's understanding is that commercial units are generally subject to different standards partly because they do not tend to be installed in garages, where cars, lawnmowers and gas cans are stored.
  2. Fairness - Similar products should be subject to similar requirements. In particular, if EPA includes EPACT covered products with storage volume 20 - 100 gallons and burner rates up to, say, 80,000 btu/hr, we would anticipate that all the current units that are 50 gallons with a 75 kbtu/hr burner (with FVIR) would disappear in favor of units that are 50 gallons with a 76 kbtu/hr burner (without FVIR). This seems to provide an arbitrary way to circumvent the intended consumer protection, and EPA is not comfortable with it. If these units are not included, no such problem exists.

# Residential Water Heater Domains



## Residential Water Heater Domains



# Hybrid Units Contd.



- Test Methods
  - Covered by NAECA ( $\leq 20$  gal) and EPACT test standards
  - DOE in the process of developing NAECA test method
- Metrics
  - Energy Factor (EF) for  $\leq 20$  gal volume units
  - Thermal Efficiency (TE) and Standby Loss (SL) for  $> 20$  gal units

# Hybrid Units Contd.



- Proposed Requirements
  - $EF \geq 0.75$  (units  $\leq 20$  gal volume)
  - $TE \geq 0.80$  (units  $> 20$  gal)
  - $SL \leq 2374 \text{ btu/hr} * (TE - 0.74)$
- Requirements intended to reflect field energy use between ES storage and ES instantaneous water heater

- Not included in this revision
  - Payback concerns as savings dependant on application
  - Complex calculations involving multiple factors
- EPA developing consumer education information, with stakeholder help
- Will consider for next revision
  - Support development of test methods for output temperature accuracy and low flow rate.

# Add-On Units



- Not included in this revision
  - Voids tank warranty
  - Existing pilot data showed reliability and consumer acceptance issues
  - Lack of recent pilot data
- Will be considered for next revision
  - Availability of recent field data
  - Manufacturers take on remaining warranty of the system

# Whole-home Electric



- Additional requirements based on Northern Climate Heat Pump Spec.
  - Audible or visual alert if compressor shuts-off or if there is a blocked drain (Revised)
  - Reporting requirement for lower compressor shut-off temperature

# Solar Water Heaters



- Solar WH retained in this revision
- Metric Change
  - Solar Energy Factor replaces Solar Fraction
- SEF based on minimum federal standards for gas (.6 EF) and electric storage (.9 EF), combined with a SF of .5.
  - Solar w/ electric auxiliary –  $SEF \geq 1.8$
  - Solar w/ gas auxiliary –  $SEF \geq 1.2$

# Revision Timeline (approx.)



- Apr. 5<sup>th</sup> Stakeholder Webinar
- Apr. 16<sup>th</sup> Draft 3 comment period closes
- Jun. 2012 Revised hybrid proposal, comment period
- Jul. 2012 Draft Final specification
- Aug. 2012 Final specification
- May 1, 2013 Effective date

# Contact information

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