



ENERGY STAR Program Requirements for Commercial Water Heaters

Certification Body Training February 7, 2013

U.S. Environmental Protection Agency
U.S. Department of Energy

Webinar Details



- Webinar and application materials will be posted to www.energystar.gov/CBresources
- Audio provided via conference call in:
 - Toll-free: **+1 (877) 423-6338**
 - Toll: **+1 (571) 281-2578**
 - Participant code: **313852**
- Phone lines will remain open during discussion
- Please keep phone lines on mute unless speaking

Agenda



- 1 Introduction
- 2 Evaluating Heaters for Certification
- 3 Reporting Requirements and Data Submission
- 4 Test Method Q & A
- 5 Next Steps and Questions

Introduction



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Webinar Objectives



1. Prepare certification body staff to evaluate Commercial Water Heaters for ENERGY STAR certification
2. Describe reporting requirements and data submission processes
3. Address any test method questions

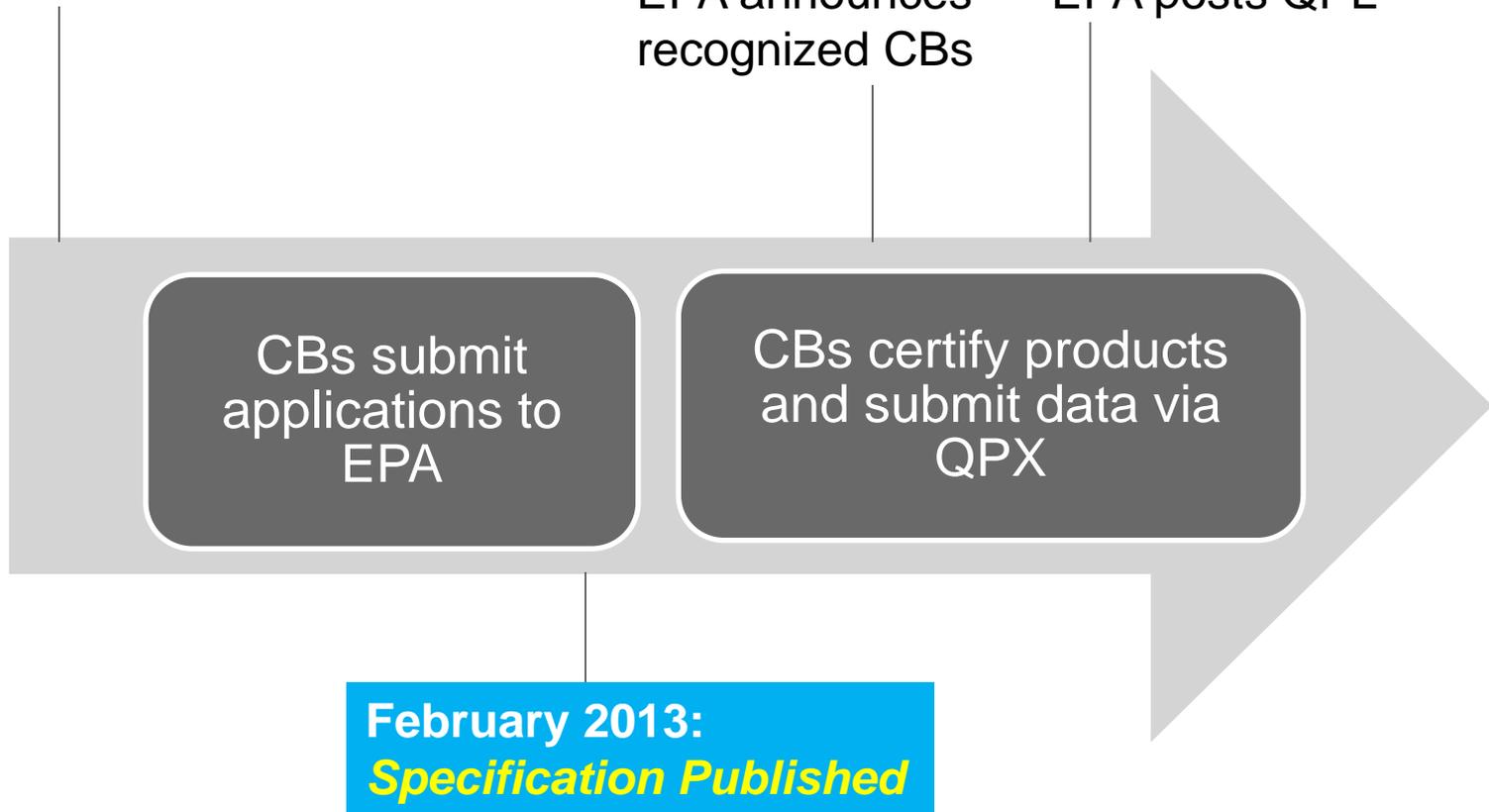
Certification Timeline



Today:
Training Webinar

Late Feb:
EPA announces
recognized CBs

March:
EPA posts QPL



Application Process



- After this webinar, EPA will begin accepting applications for recognition. The application will be posted at www.energystar.gov/CBresources
- Please send a signed application and evidence that you have contacted your accreditation body requesting a scope expansion for the Commercial Water Heaters program to certification@energystar.gov:
- A successful QPX test submission using the Commercial Water Heater web service will also be a pre-requisite for recognition.
- EPA will notify CB's when the QPX is available for test submissions, but you may also check at www.energystar.gov/qpx

Evaluating Water Heaters for Certification



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Key Questions for Evaluation



1. Is the model within **scope**?
2. Does the model meet the **safety requirements**? (ANSI Z21.10.3/CSA 4.3)
3. Is the model part of a **basic model**?

Scope: Included Products



Q. Does the model meet the **definition** (Section 1) of a **Commercial Water Heater**?

- Gas Storage: is industrial equipment and has input rate 75,000 Btu/hr or greater
- Gas Instantaneous: input rate not less than 4,000 Btu/hr per gallon of stored water, is industrial equipment and designed to heat water to 180F or higher
- Electric: no requirements currently defined

If YES: Continue. 

If NO: Model is not eligible for the program.



Scope: Excluded Products



Q. Does the product meet any of the following **definitions** (see Section 1) of excluded products:

- Product is covered under other ENERGY STAR programs (particularly Residential WH)
- Oil fired water heaters
- Combined heating, cooling and hot water systems
- Storage water heaters > 140 gallons capacity

If YES: Model is not eligible for the program.

If NO: Continue 



Basic Model



Q. Is the model part of a **basic model**?

Basic Model: All units of a given type of covered product (or class thereof) manufactured by one manufacturer, having the same primary energy source, and which have essentially identical electrical, physical, and functional (or hydraulic) characteristics that affect energy consumption, energy efficiency, water consumption, or water efficiency.

If YES, the test of the representative model applies to this model. →

If NO, the model must be tested .

Questions



- The line is now open to receive any questions related to **Evaluating Commercial Water Heaters for Certification.**

Key Questions for Evaluation



1. Is the model within **scope**? ✓
2. Does the model meet the **safety requirements**? (ANSI Z21.10.3/CSA 4.3) ✓
3. Is the model part of a **basic model**? ✓

Model now ready for evaluation against efficiency requirements

Energy Efficiency Criteria



Commercial Water Heater Criteria

Water Heater Type	Input rate	Efficiency requirements
Storage	> 75,000 Btu/hr	$TE \geq 0.94$ Standby Loss $\leq 0.84 * [(Input\ Rate / 800) + 110(Volume)^{1/2}]$ (Btu/hr)
Instantaneous	$\geq 200,000$ Btu/hr	$TE \geq 0.94$
Instantaneous	< 200,000 Btu/hr	$TE \geq 0.94$ or $EF \geq 0.93$

Standby loss details, example



- “Volume” refers to the rated water storage volume of the water heater in gallons
- “Input rate” refers to the manufacturer’s name plate input rate in Btu/hr

Example: an 80 gallon water heater with 76,000 Btu/hr input rate would have a maximum allowable standby loss of

$$.84 * [(76,000/800) + 110*(80)^{1/2}] = 906.25 \text{ Btu/hr}$$

EF or TE?



- ENERGY STAR CBs are not responsible for ensuring manufacturers are using the right metric(s).
- For ENERGY STAR purposes, evaluation with either metric (in accordance with DOE testing requirements) is acceptable.

Questions



- The line is now open to receive any questions related to the **Evaluation Against Efficiency Requirements.**

Reporting Requirements and Data Submission



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Using the QPX



- Each Basic Model should have at least one data submission
- Basic Model is defined as
 - made by the same manufacturer (OEM),
 - Meets the same ENERGY STAR efficiency criteria
 - Same common basic design
 - Has the same certified rating
- Product models within a Basic Model may differ from each other if:
- Differences of one or more characteristics or features that have no impact on product performance with regard to ENERGY STAR qualification criteria

Reporting Requirements



A successful QPX test submission using the Commercial Water Heater web service will be a pre-requisite for CB recognition.

CBs shall report the following data to EPA which includes both tested and verified data and manufacturer provided information:

- Relevant to qualification
 - Product type, fuel type, efficiency ratings, input and volume ratings
- Installation information
 - Vent types and location, product size

Fields are specified in the data reporting template (QPX)

Importance of Data Quality



- CB errors in XML-based data submissions **will** display on public-facing qualified product lists (QPLs) and product finder tool.
- QPLs are an **extremely important** resource: used by consumers, retailers, utilities, third-party organizations, U.S. Customs and Border Protection, and ***your customers*** - manufacturing partners.
- Common errors:
 - Ineligible product type - may need to review materials or ask questions
 - Not listing the brand owner as the manufacturing partner
 - Missing/blank values - which criteria to report depends on product type
 - Incorrect units or wrong decimal point
 - Incorrect Type of Transaction (registration vs. initial certification)

• ***Check that data is complete and accurate prior to uploading.***

QPX – Optional vs. Required



- Draft data requirements available at www.energystar.gov/QPX

Product Specific Information 						
ENERGY STAR Specification Version		R	N	Enumeration Data		▪ 1.0
Product Type		R	N	Enumeration Data		▪ Gas Storage ▪ Gas Instantaneous ▪ Electric Heat Pump
Thermal Efficiency (TE)	Required if Product Type is Gas Storage or Gas Instantaneous.	O	N	Decimal	No. of Decimal: 2 Min Value: 0.94	
Standby Loss (SL)	Required if Product Type is Gas Storage.	O	N	Integer		
Fuel Type	Required if Product Type is Gas Storage or Gas Instantaneous.	O	Y	Enumeration Data		▪ Gas ▪ Propane
Max Input (BTU/H)	Required if Fuel Type is Gas or Propane.	O	N	Integer	Min Value: 75000	
Therms Per Year	Required if Product Type is Gas Storage or Gas Instantaneous.	O	N	Integer		
Max Input (W)	Required if Product Type is Electric Heat Pump.	O	N	Integer		

Questions



- The line is now open to receive any questions related to **Reporting Requirements and Data Submission.**

Test Method Q & A



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Commercial Water Heater Test Methods



- DOE test procedures from CFR

Metric	Test method
Thermal Energy (TE) and Standby Loss (SL)	10 CFR Part 431.106
Energy Factor (EF)	10 CFR Part 430, subpart B, Appendix E

Questions



- The line is now open to receive any questions related to the **Test Method**.

Next Steps and Questions



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Contact Information



Please send all questions to:

- Certification: certification@energystar.gov
- Technical Assistance:
CommercialWaterHeaters@energystar.gov

Eamon Monahan

EPA ENERGY STAR Program

Monahan.Eamon@epa.gov

Abigail Daken

EPA ENERGY STAR Program

Daken.Abigail@epa.gov

Ashley Armstrong

DOE ENERGY STAR Program

Ashley.Armstrong@ee.doe.gov

References and Resources



- Certification Body Resources (including application form):
www.energystar.gov/CBresources
- ENERGY STAR Commercial Water Heater specification development:
Go to www.energystar.gov/NewSpecs and click on “Commercial Water Heaters”