ENERGY STAR®
Boilers

Draft 2 Version 3.0
Stakeholder Meeting
August 20, 2013

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Agenda

- Welcome and Introductions
- ENERGY STAR Specification Development Cycle
- Drivers for Specification Revision
- Draft 2 Document Discussion
  - Condensing boiler life expectancy
  - Revised DOE test method for AFUE
  - Rounding
- Timeline and Next Steps
Development Process

Specification Development Cycle

1. International Coordination
2. Stakeholder Notification
3. Open Specification for Revisions (as necessary)
4. Energy & Environmental Analysis
5. Market, Industry & Design Research
6. Test Methodology Development (as necessary)
7. Release Draft Specification
8. Stakeholder Meetings
9. Release Subsequent Drafts with Interim Decision Memos (as necessary)
10. Post Drafts and Stakeholder Comments to Web Site
11. Final Decision Memorandum
12. Finalize Specification
13. Manufacturer Programs as Partners and Begin Labeling Products
14. Officially Launch Specification with Industry and Stakeholders
15. Monitor Market Penetration

International Coordination
Drivers for Specification Revision

- Current ENERGY STAR Version 2.1 specification has been in place since April 1, 2002.
- New Federal minimum efficiency standards took effect in September 2012. The new minimum efficiency levels – gas boilers at 82% AFUE and oil boilers at 84% AFUE – are close to the current ENERGY STAR requirements.
  - Federal requirements also include design standards.
- High Market Penetration. In 2012, estimated market penetration of ENERGY STAR qualified boilers reached 53% (gas boilers at 57% and oil boilers at 47%).
Draft 2 proposal

• Largely unchanged from Draft 1
• No stakeholder objections to dropping the option to use CAFUE to rate units
• Proposed requirements in Draft 2 are the same: 90 AFUE gas, 87 AFUE oil
• No consideration of idle loss b/c no test method
• Some stakeholders claimed condensing boilers have shorter life expectancy
Condensing Boilers – Life Expectancy

• Shorter life expectancy would result in increased number of replacements thereby increasing costs

• In an effort to validate the condensing boiler life expectancy, EPA reached out to various stakeholders, such as
  – contractors across different regions
  – manufacturers
  – energy advocacy groups
  – NRCan
Condensing Boilers – Life Expectancy

• EPA also reviewed the European Commission market analysis reports for any data on condensing boiler life expectancy
• Opinions varied among stakeholders, and no data or studies were found to validate the shorter life expectancy claim
• Discussion with various stakeholders indicated that with current, mature product designs and proper maintenance, condensing boilers will last just as long as the non-condensing boilers
In July 2013, DOE issued a final rule on the Residential Furnaces and Boilers test procedure. The revised test method includes additional equations to calculate AFUE for two-stage and modulating condensing furnaces and boilers when manufacturers opt to omit heat-up and cool-down tests. Several stakeholders asked if this would affect our requirements. This depends on how it affects ratings.
Revised DOE Test Method Questions

1. With the new calculation, are there condensing boilers with ratings lowered below 90% AFUE?

2. If the revised condensing boiler AFUE has lowered to 89% AFUE, is there a risk of near-condensing boilers qualifying to the program if EPA adopts that level?
Rounding Requirements

- DOE’s rounding principles require AFUE to be rounded to the nearest whole percentage point.
- To align with the DOE rounding principles, EPA proposes to revise the AFUE levels as follows:

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>AFUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas</td>
<td>90%</td>
</tr>
<tr>
<td>Oil</td>
<td>87%</td>
</tr>
</tbody>
</table>
Specification Development Timeline

- Jul. 25, 2013, Draft 2 released
- Aug. 20, 2013, Stakeholder Webinar
- Aug. 30, 2013, Draft 2 comment period closes
- Sep. 2013, Draft Final published
- Oct. 2013, Draft Final comment period
- Oct. 2013, Final published
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Questions?
Thank You