



Residential Furnaces

Stakeholder Webinar
January 6, 2010
Washington, DC



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Welcome

Introduce ourselves

Topics



- Introduction
- Air leakage
- Fan efficiency – the Canadian solution
- Regional requirements
 - labeling
- Product availability
- Cost effectiveness



We'll be structuring the webinar according to the comments that we received on the Draft 2, Version 3.0 Furnace requirements. We've grouped the comments by topic – hopefully you will see your topic addressed; if not, we will have time at the end. There is some overlap of topics, so bear with us!

We had scheduled until 3 pm for this call, but hopefully will be able to wrap up by 2:30 pm. Part of the reason I think we might be able to do so is that EPA has decided not to move forward to a draft final until we have a chance to see the Technical Support Documents that DOE releases as part of it's upcoming combined NOPR for furnaces and CAC/ASHP. We will more fully address the many comments we received on cost effectiveness once we have seen these materials.

Introduction



- You all know ENERGY STAR well so I'll spare you the overview!
- Drivers for the examining the furnace spec

| Year | Gas market penetration | Oil market penetration |
|------|------------------------|------------------------|
| 2009 | 50% | 24% |
| 2008 | 43% | 12% |
| 2007 | 32% | 10% |

- Last specification effective 2006, Tier 2 2008.
- Canadian minimum now 90 AFUE (gas), new U.S. standard as early as May 2013.



Note that we did not anticipate the large jump in penetration of the oil furnace market.

Air Leakage



- Not relevant in Canada, since furnaces are installed in conditioned space.
 - Drop the requirement for Q_{leak} in Canada?
 - This would require a Canada-specific label as well.
- Other issues
 - Test is expensive and time consuming to perform
 - Skill of testers affects results
 - Test is new – no round robin yet and little data
 - Likely to adversely affect product availability
- Partly address objections by moving requirement to a second Tier, one year later?



We got a number of comments this time on the ASHRAE 193 air leakage test.

Fan Efficiency



- Circulation efficiency important to account for in Canada
 - Option 1: prescriptive requirement for multi- or variable-speed fans? How would we phrase that?
 - Option 2: specify voltage level for test (prevents gaming of “e” metric to allow in PSC fans)



I would like Rosalyn Cochrane from Natural Resources Canada, who is on this call, to take a minute to explain Canadian concerns and some proposed solutions.

Fan Efficiency



- Coordination with DOE test method
 - Expected test method finalization Dec 2012
 - Revise furnace specification using data from new test method approximately one year after that.



For our part in the US, we plan to coordinate with DOE when their test procedure becomes available.

Our current plan is to allow a year after the finalization of the test procedure for data to become available, and then consider the data as part of a regular review of the furnace specification.

I realize this is a faster pace of revisions than we used to do for HVAC equipment.

As part of updating the ENERGY STAR program, we have committed to at least checking every product category at least every three years.

Regional Requirements



- ENERGY STAR is a consumer information program.
- Enforcement = accurate information to the consumer.
- Enforcing the regional requirement is similar to our current enforcement.
- Burden for distributors similar to that with utility or state rebate programs.
- All furnaces of a particular model leave the factory with the same label. (see next slide)



We got many comments on regional requirements, mostly having to do with enforcement, and the burden that would impose for all members of the value chain.

Based on that, we thought carefully about what enforcement means for a voluntary program such as ours.

Once we were clear on that, this looked like a less difficult issue that we expected.

Let's go through this in detail.

Regional Requirements - Examples



- 92 AFUE furnace which meets other requirements



- 95 AFUE furnace which meets other requirements



These are preliminary mockups of what labels might look like.

For a furnace which meets requirements for the US South, all units and all literature would be labeled with something like the one shown here that specifies the states in which it is qualified. There would be no need to have units labeled differently depending on where they were sold.

The obligation of contractors and distributors to their customers would be to be informed about what region a particular customer was in, such that they could give them accurate information.

This is similar to, but easier than, the current need to give customers accurate information about qualification for utility rebates, for instance. Is that something that contractors and distributors currently try to stay on top of?

Regional Requirements - Questions



- Do furnaces have an ENERGY STAR badge on the cabinet itself?
- Regionalized logo on the Energy Guide label
 - FTC will find an interpretation so that manufacturers can use the regionalized logo without a rulemaking.
 - At minimum, will not enforce proper use of the regionalized logo, even if they violate the letter of the regulations
 - EPA will remain connected to the upcoming rulemaking relevant to regional minimum standards.



Product Availability – Problem?



- October 2010 AHRI directory, all active models.

| AFUE | Fan efficiency | % of models |
|------|----------------|-------------|
| 90 | -- | 38% |
| 92 | -- | 31% |
| 95 | -- | 16% |
| 90 | $e \leq 2\%$ | 13% |
| 92 | $e \leq 2\%$ | 12% |
| 95 | $e \leq 2\%$ | 8% |

- But what if we looked at percent of models actually sold in Northern region?
- Effect of Q_{leak} requirement unclear.



These numbers for the national market are definitely a little low, but I get the impression that not all models are actually sold in the North, so the % of the regional market is likely to be higher. I have no quantification of this, however, and CEE's point about availability is well taken. Therefore, we are actively seeking solutions to this.

Numbers for 3% e:

90 17%

92 15%

95 10%

2009 Market penetration 50% for gas furnaces, in contrast with 38% of models. So clearly there is something going on here.

Product Availability – Solutions?



- Would prescriptive fan requirement, as suggested by Canada, be better?
- Other ideas? Discussion.
- Q_{leak} in Tier 2?
- “e” in Tier 2?
- Do not raise AFUE, only include Q_{leak} and “e”
 - Considerably reduced carbon savings – is it worth it?



Cost Effectiveness - Issues



- Pointed out that combining information from market survey (EPA method) with information from markup chain (DOE method).
- Several claims that installation cost in particular very low. AGA backed up with recent data.
 - Payback for condensing vs. non-condensing > 14 years. Up to 30 years in South.
- Request to ensure coordination with DOE's upcoming TSD.



Cost Effectiveness - Discussion



- If our calculations are so wrong, why have high efficiency units been selling so well?
- New DOE TSD due out in January.
- If there is no cost effective way to tighten requirements, must we sunset the program?
- Would prefer not to, as see features on the horizon (diagnostics, comms) with EE potential.



As I mentioned, we will not be addressing these issues fully at this time, because we plan to delay the furnace revision process a few weeks to allow better coordination with DOE. When the TSD comes out, we would be very interested in your initial impressions as to it's accuracy.

Furnace Specification Timeline



- March 2011 Draft Final Version 3.0 Furnace Specification
- April 2011 Final Version 3.0 Furnace Specification
- December 2011 Version 3.0 Furnace Specification Effective
- Early 2014 Next revision cycle starts



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As always, you are welcome to speak to any of us at any time about your concerns. Praise is also welcome!



Thanks for coming!



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