



ENERGY STAR Criteria for Refrigerators

Overview of ENERGY STAR Criteria Setting Process and History of Refrigerator Criteria

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ENERGY STAR Purpose



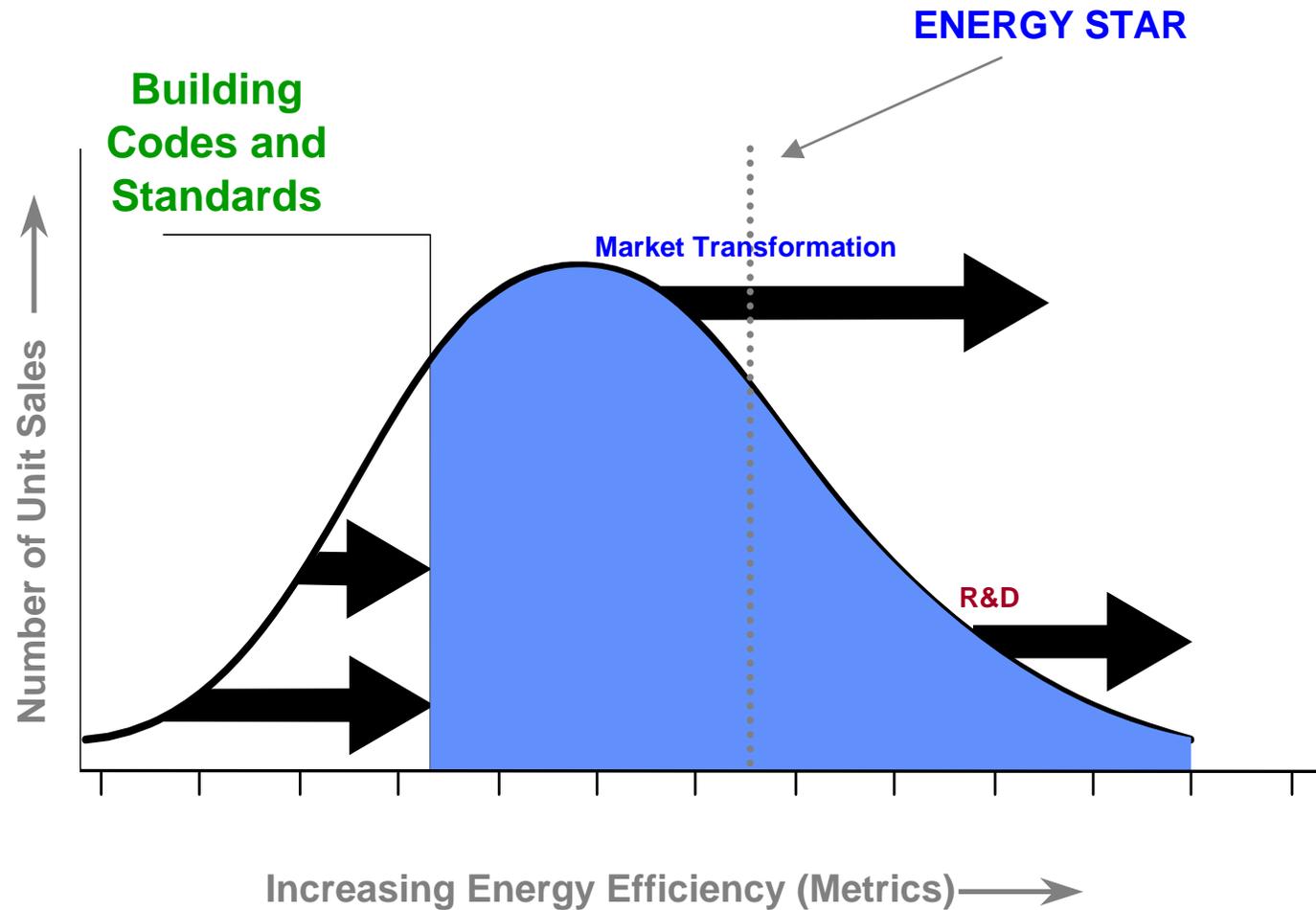
- Preventing pollution through energy savings
 - Section 103 of the Clean Air Act as amended in 1990
- Promoting development and commercialization of energy efficient appliances
 - Section 127 of the Energy Policy Act of 1992
- Legislation directs agencies to establish voluntary programs that promote products more efficient than minimum Federal or State codes
- Section 131 of the Energy Policy Act of 2005 requires DOE and EPA to regularly update product criteria for product categories.

ENERGY STAR Fundamentals



- Voluntary Program
- Reduces Energy Use
- Prevents Pollution
- Profitable for Partners

Theory of Criteria Setting



Product Criteria Revision Guiding Principles



- Significant energy savings
- No impact on product performance
- Price premium can be recovered
- Several technology options can achieve criteria setting (one of which is non-proprietary)
- Energy consumption can be quantified
- Label differentiates products and is visible to purchasers

Criteria Revision Process



- DOE maintains the ENERGY STAR Criteria and reserves the right to change the criteria at any time should technological and/or market changes affect its usefulness or effectiveness. Changes can be triggered by revisions to Federal standards or market saturation.
- DOE will notify all ENERGY STAR partners and stakeholders by e-mail to announce the launch of a revision process, provide initial analysis or proposal of those requirements are targeted for potential revision, and call for comments.
- DOE will hold a stakeholder meeting.
- All formal comments will be reviewed and considered by DOE.
- All draft criteria revisions, announcements, partner and stakeholder comments, partner meeting minutes and presentations will be posted on the ENERGY STAR web site.

ENERGY STAR Refrigerator Criteria History



- 1987 – Congress passed the National Appliance Energy Conservation Act (NAECA)
- 1990 – First Federal refrigerator standard and test procedure adopted
- 1993 – Federal standard revised
- 1997 – ENERGY STAR program expanded to include residential refrigerators at 20% better than the 1993 Federal standard
- 2001 – ENERGY STAR criteria updated on January 1 to 10% better than the July 1, 2001 Federal standard
- 2003 – ENERGY STAR program expanded to include all refrigerator and freezer categories
- 2004 – ENERGY STAR criteria updated to 15% better than the Federal standard

ENERGY STAR Qualified Refrigerator Market Penetration



Year	ENERGY STAR market penetration	Estimated ENERGY STAR qualified refrigerator shipments
1997	25.34%	2,007,942
1998	19.43%	1,704,525
1999	24.38%	2,218,722
2000	27.00%	2,532,802
2001	17.30%	1,643,963
2002	20.07%	1,955,690
2003	25.65%	2,570,193
2004	33.22%	3,628,355
2005	32.93%	3,666,426
2006	31.16%	3,451,503

Next Steps



- Today's Stakeholder Meeting
- Collect Comments (June 22, 2007)
- Analyze Comments
- Issue Final Program Requirements and set Effective Date



ENERGY STAR Criteria for Refrigerators

Review of Market Impact Analysis of Potential Changes

Bill McNary
D&R International

June 4, 2007

Impetus for Criteria Revision



- ENERGY STAR criteria last changed on January 1, 2004.
- More than 50% of available models and more than 30% of unit sales are ENERGY STAR qualified.
- Average refrigerator savings only \$7 per unit making program sponsor promotions unlikely.
- Models using 20% less energy are technically feasible.
- Additional issue of test results not consistent with real-world energy consumption.

Standard Refrigerator Market



Efficiency Level	Number of Available Models	Percentage of Available Models
Current Federal Standard	2,733	100%
Current ENERGY STAR Criteria (15% less energy)	1,539	56.3%
20% less energy than Federal standard	121	4.4%
25% less energy than Federal standard	13	0.5%

D&R International, May 29, 2007

Available Standard Units – 20% less energy or better



Configuration	Less than 18 cubic feet	18-22 cubic feet	22-26 cubic feet
Bottom-Mount Freezer	2	40	15
Top-Mount Freezer	2*	12	0
Side-by-Side Freezer	0	10	33
Single Door	7*	0	0

D&R International, May 29, 2007

*Includes manual defrost units (2 top-mount and 3 single door)

Potential Energy Savings



ENERGY STAR Shipments (20% Market Share)	Non-Qualified Annual Energy Use (kWh/year)	ENERGY STAR Qualified Energy Use (kWh/year)	Savings per Unit	National Aggregate Savings (MWh/year)
2,215,520	521	417	104*	230,414

*Current Savings are 70 kWh/year (D&R International, 2007).

Test Criteria Changes



- The DOE test procedure allows units to be tested in a hotter room (90 degrees F as opposed to 70 degrees F) without door openings.
- Modern refrigerators can detect this and may change their processes.
- The clarification requires that all components that operate in typical room conditions and are not exempted by the standard shall operate in an equivalent manner under the DOE test procedure.

Summary of Comments Received



- April 1, 2008 effective date is too soon (Electrolux, Liebherr, Natural Resources Canada, Samsung, Sub-Zero)
- Delay beyond April 1, 2008 will result in a disincentive for highly efficient models due to the manufacturer tax credits (Whirlpool)
- Better market data should be acquired from AHAM (Liebherr)
- Models meeting the new criteria will need to use vacuum panels which are very expensive (Liebherr)

Summary of Comments Received (continued)



- Test procedure should include other energy saving features (Liebherr) and should be updated (CEE)
- Future criteria revisions should consider a uniform kWh ceiling across all sizes, more stringent efficiency requirements for larger models, and the elimination of configuration categories (CEE)

Areas DOE Requests Input



- Timing of criteria revision (proposed effective date is April 1, 2008).
- Feasibility of a 20% more efficient level for all sizes and configurations.
- Input data accuracy and reliability.
- Other issues to include in the criteria.

Discussion



- DOE welcomes comments today and by June 22, 2007.
- Any written comments may be submitted to Richard Karney at Richard.Karney@EE.DOE.GOV
- Previously submitted comments, today's presentations, notes from today, and future comments will all be posted at http://www.energystar.gov/index.cfm?c=revisions.res_refrig_spec