



# ENERGY STAR®

## Most Efficient 2012 Update and 2013 Proposals

September 27, 2012

 Learn more at [energystar.gov](http://energystar.gov)

## Webinar Details



- Audio provided via teleconference:
  - Call in:** +1 (877) 423-6338 (U.S.)
  - Code:** 456-417
- Press \*6 to mute or un-mute your line

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## Goals of Webinar



- Review ENERGY STAR Most Efficient goals and target audience
- Provide update on pilot in 2012
- Share highlights of pilot evaluation
- Present and seek feedback on 2013 proposed product mix and recognition criteria



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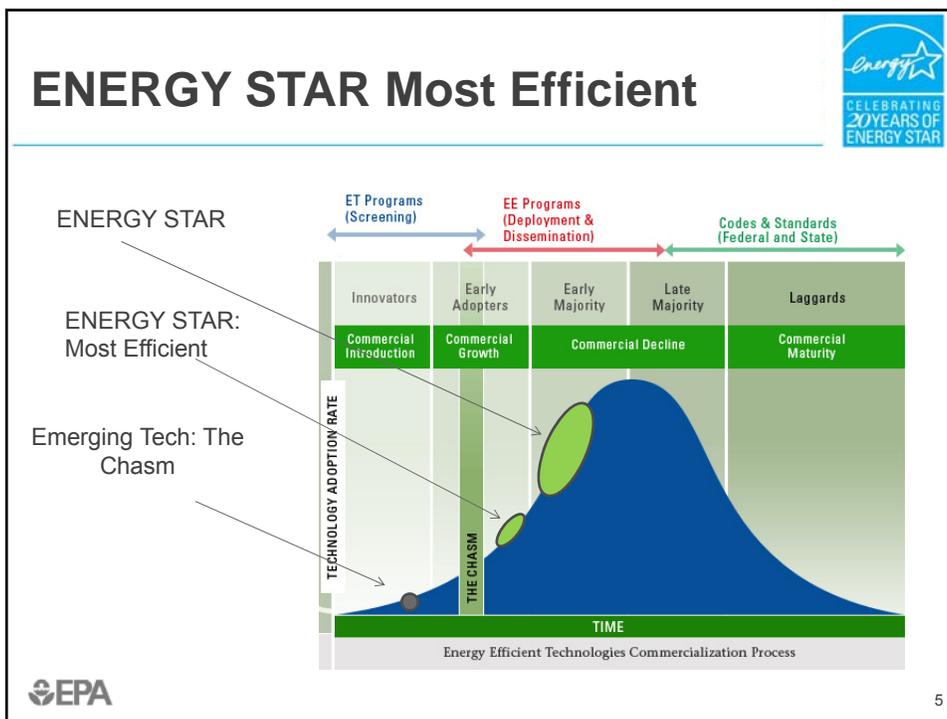
## Most Efficient Goal and Audience



- Goal: Drive more energy efficient products into the market more quickly
  - Identify the top, few, most energy efficient products
  - Avoid confusing consumers or harming the ENERGY STAR brand
  - Align with ENERGY STAR program goal of reducing GHGs
- Audience: Early adopters, environmental interest
- Launched pilot in 2011; continuing through 2012
  - TVs, clothes washers, refrigerators, CAC, heat pumps, boilers, furnaces, geothermal heat pumps



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## Update on 2012 Pilot

As of September 4, 2012, more than 1400 models from over 70 manufacturers are recognized as ENERGY STAR Most Efficient 2012.

| <b>ENERGY STAR Most Efficient 2012 Recognized Models</b> |                   |   |
|--|-------------------|---|
| As of 9/4/2012   |                   |   |
| <i>Product Categories</i>                                | <i>Models (#)</i> | <i>Manufacturers with Recognized Models</i> |
| Air-Source Heat Pumps                                    | 60                | 4   |
| Boilers  | 74                | 11  |
| Central Air Conditioners                                 | 72                | 6   |
| Clothes Washer   | 66                | 8   |
| Furnaces   | 131               | 5   |
| Geothermal Heat Pumps                                    | 609               | 5   |
| Refrigerators-Freezers                                   | 80                | 8   |
| Televisions  | 337               | 27  |
| <b>Total</b>   | <b>1,429</b>      | <b>74</b>                                   |

# Update on 2012 Pilot



- Utilities are responding with rebates and outreach
  - LIPA: 2012 refrigerators
  - PECO: 2012 clothes washers and refrigerators
  - DTE: 2012 TVs
  - SCE: 2012 refrigerators
    - Tiered ENERGY STAR promotion, including recycling (SCE is RAD partner)
    - Launched online presence May 1
    - Retail presence target launch is June 1
  - Nicor Gas is promoting 2012 ME Furnaces (\$500 - \$1,500 rebates on natural gas furnaces meeting ME criteria)
  - ComEd is promoting ME CACs
  - Carteret-Craven Electric Cooperative (Education-only)
  - South Dakota Public Utilities Commission (Education-only)



# Example: Draft SCE POP



—Large Chg—  
Located on side of refrigerator  
Size: 24" x 54"

**LOOK INSIDE FOR FRESH SAVINGS**

LOOK INSIDE FOR FRESH SAVINGS

GET A \$35 REBATE

SAVE UP TO \$180 A YEAR

Talk to a store associate today. You can also visit [sce.com/Lowes](http://sce.com/Lowes), scan this code with your smartphone or call 1.800.738.4777

LOWES TRU-PRICING EDISON ENERGY SERVICES

2012 ARP-HEER RETAIL POP | LOWE'S Refrigerator Chg

**GET A \$35 REBATE**

When you buy an ENERGY STAR® qualified refrigerator

Size: 12" x 8"

—Small Chg—  
Located on front of refrigerator

**GET A \$75 REBATE**

It's one of Energy Star's Most Efficient!

Size: 11.5" x 5.5"



## Example: LIPA Ad, DTE POP



The most efficient refrigerators can now dispense water, ice and \$100 rebates.



Earn rebates up to \$100 on the purchase of an ENERGY STAR® "Most Efficient" refrigerator. Your refrigerator consumes more energy than any other kitchen appliance. New ENERGY STAR qualified refrigerators are at least 30% more efficient than new conventional models and the ENERGY STAR "Most Efficient 2012" models are at least 30% more efficient.

**\$100 LIPA Rebate for "Most Efficient" models**

Right now, LIPA is offering a \$100 rebate on "Most Efficient" designated refrigerators. A \$75 rebate is also available for select ENERGY STAR qualified refrigerators larger than 16 cubic feet.

For details, visit [lpower.org/efficiency](http://lpower.org/efficiency) or call 1-800-692-2424.



#### BENEFITS:

- Available in top, bottom and side-by-side models
- Offer good through December 31, 2012. Rebates for residential LIPA customers only
- List of qualified refrigerators are available at [lpower.org/efficiency](http://lpower.org/efficiency)



**DTE Energy**  
Save energy. Save money. Together we will.

**Energy-Efficient Featured Product**

Ask for more information on ENERGY STAR® qualified models.

## Pilot Evaluation: Indicators



- Throughout the pilot, EPA tracked progress to ensure pilot fulfilled purpose and guarded against negative implications for ENERGY STAR brand. Indicators monitored:
  - Increase in number of ENERGY STAR Most Efficient recognized models on the market
  - Potential to leverage private sector activities to increase visibility and consumer understanding of the designation
  - Any early indication of harm to the ENERGY STAR label
  - Feedback on how the Most Efficient program can be improved



## Pilot Evaluation: Basis



- Evaluation based on:
  - Qualified product data
  - In-store assessment of ENERGY STAR use
  - Annual analysis of the Consortium for Energy Efficiency Household Survey on ENERGY STAR awareness and use
  - Feedback from partner outreach and media tracking
  - Feedback from early users of the Most Efficient designation in guided discussions about their experience with the program



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## Pilot Evaluation: Findings



- Increase in recognized products : drive super efficient models to the market more quickly
  - In 2012, clothes washers grew from 34 models to 65 models (as of 8/27/12)
  - In 2012, televisions grew from 63 models to 348 models (as of 8/27/12)
  - Geothermal heat pumps grew from 0 products available at the beginning of the pilot to more than 600 models today.
    - Prior to the pilot, no residential geothermal heat pumps had two-way communications features--a requirement for the Most Efficient designation for heating and cooling equipment.
  - Availability of furnaces and central and air source heat pumps also grew considerably as shown in table below.

| Increase in Most Efficient designated Heating and Cooling Equipment |     |         |          |          |
|---|-----|---------|----------|----------|
| Quarter   | GHP | Boilers | CAC/ASHP | Furnaces |
| Q2 2011   | 0   |         | 44       | 11       |
| Q3 2011   | 39  |         | 49       | 31       |
| Q4 2011   | 39  |         | 49       | 55       |
| Q1 2012   | 288 | 33      | 64       | 79       |
| Q2 2012   | 609 | 71      | 132      | 131      |



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## Pilot Evaluation: Findings



- The private sector is beginning to grow its investment in the ENERGY STAR Most Efficient designation
  - In 2011: ENERGY STAR Most Efficient introduced by 1 utility efficiency program for a fall appliance rebate and a co-promotion between a utility and a national retailer occurred. Combined-affects 200 stores with messaging reaching 1.9 million consumers.
  - Sears showed early strong support for highlighting ENERGY STAR Most Efficient clothes washers in stores.
  - Natural Resources Canada also launched a Canadian pilot of ENERGY STAR Most Efficient.
  - In 2012: Ongoing SEARS promotion, 8 efficiency programs highlighted one or more products in program outreach or incentive programs.
  - ENERGY STAR Most Efficient aired on national television--on June 16, 2012, an LG ENERGY STAR Most Efficient clothes washer was featured on "The Price is Right". The Nielsen Audience rating for this airing was more than 4.5 million.
  - Nearly all interviewed partners explained that they want to continue promoting Most Efficient and see it as a natural progression of ENERGY STAR. Several manufacturers felt that Most Efficient helped them differentiate their products as the "best of the best" products with brand that consumers know and are comfortable with.



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## Pilot Evaluation: Findings



- No discernible adverse impact in terms of consumer perception of the ENERGY STAR label.
  - In first year of the pilot, Consortium for Energy Efficiency Annual Household Survey of ENERGY STAR household awareness, understanding, and use confirmed ENERGY STAR awareness, understanding and use remained strong.
    - More than 80 percent of households recognized and demonstrated understanding of the ENERGY STAR label.
    - Of those who knowingly purchased an ENERGY STAR product, 75 percent reported the label as influential in their purchasing decision.
    - Nearly 80 percent of purchasers said they were likely to recommend products that have earned the ENERGY STAR to friends.
  - Survey questions specific to the ENERGY STAR Most Efficient designation, added in 2011, are helping to establish a baseline for recognition and interest in the Most Efficient designation.
    - When shown the ENERGY STAR Most Efficient marketing designation about 10 percent of respondents recognized it.
    - Among respondents who had seen or heard of ENERGY STAR Most Efficient designation and recognized the Most Efficient graphic, 59 percent agreed somewhat or strongly with the statement that "All other things equal, I would buy a product because it is designated as ENERGY STAR Most Efficient"



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## Pilot Evaluation: Findings



- Discussions with pilot participants produced these suggestions for program improvements:
  - Program planning: certainty needed regarding future of pilot program
  - Specification levels: release earlier, be clearer about factors being balanced when levels set
  - Program promotion: promote nationally
  - Product availability: resolve differences between ENERGY STAR Most Efficient lists and retail offerings
  - Sales staff training: would help avoid consumer confusion, develop tools to support
- Full report available at: [www.energstar.gov/mostefferient](http://www.energstar.gov/mostefferient)



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## Proposed 2013 ENERGY STAR Most Efficient Products



- Boilers
- CAC/ASHP
- Clothes Washers
- Furnaces
- Geothermal Heat Pumps
- Refrigerators
- TVs
- *New:* Windows
- *New:* Computer Monitors
- *New:* Ceiling and Vent Fans



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## Propose 2013 Changes to Criteria for 2 Categories



| Product Category | Proposed Increase in Stringency   | % of Current Models Captured                    | Manufacturers Represented                                  |
|------------------|---|---|--|
| TVs              | Sample On Mode Power Allowances:<br>32 inch: 25W<br>42inch: 40W<br>60inch: 60W  | ~5%<br>(good representation across major sizes) | Samsung, Sharp, Phillips, Funai, Gold Alliance Electronics |
| Clothes Washers  | Large Washers:<br>MEF increase from 3.0 to 3.2<br>WF increase from 3.3 to 3.0<br><br>Smaller Washers:<br>MEF increase from 2.3 to 2.4<br>Maintain WF of 4.5 | ~4%   | Asko, Electrolux, Kenmore, LG, Samsung, Whirlpool          |


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## Propose Maintaining Criteria for Other Categories in 2013

- Refrigerator/Freezers
  - Offers choice in a range of sizes and configurations, yet small overall number of recognized models
  - Modest number of new models recognized since beginning of 2012
- HVAC (CAC, HP, Furnaces, Boilers)
  - Some growth in number of recognized models but still very small percentage of available models
- Geothermal Heat Pumps
  - Steady growth in recognized models (from 39 to 609) to about 5% but savings remain dramatic (typically half of conventional CAC)


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## Propose New Categories in 2013: All Fit ENERGY STAR Most Efficient Principles



- Truly exceptional, high quality performance, more than 1 manufacturer, may not be cost effective
- Windows
  - High performance triple pane windows offer huge leap in energy performance. Currently relatively high cost and low availability
- Computer Monitors
  - Wide range of energy performance among ENERGY STAR in a category of interest to early adopters
- Ceiling Fans / Ventilation Fans
  - DC motors can offer dramatic savings (use 1/3-1/2 power of fan with conventional motor). Also, among quietest. Currently high cost and low availability



## Propose 2013 Criteria for New Products



| Product Category    | Proposed Requirement   | % of Models Captured | Manufacturers Represented   |
|---------------------|--|----------------------|---|
| Residential Windows | Insulating Power: U-factor $\leq$ 0.20<br>Solar Heat Gain Coefficient: Meets std. ES spec<br>Visible Transmittance: VT $\geq$ 0.40<br>Product must meet code air leakage, water leakage, and structural testing standards for residential products | <1%                  | Wide variety of manufacturers and product types   |
| Computer Monitors   | Sample On Mode Requirements:<br>Small (15-16inch): <6W<br>Med (17-24inch): 15W<br>Large (25-30inch): 19-29W  | 5%                   | 20 including: Acer, Asus, Dell, LG, NEC, Phillips, Samsung, View Sonic                                    |
| Ceiling Fans        | Efficiency (cubic feet per min/W)<br>170 high speed, 270 medium speed, 400 low speed   | 8%                   | Generation Brands, Regency Ceiling Fans, King of Fans, Hunter Fans, Fanimation, Minka Group, Big Ass Fans |
| Ventilating Fans    | Bathroom/utility fans only; Efficiency (cubic feet per min/W)<br>7.5 cfm/W high speed for 10-89 cfm fans<br>6.8 cfm/W high speed for 90 cfm or higher fans   | 2.5%                 | Panasonic, Delta Electronics, Broan-Nutone  |



## Televisions



- Reflects the top 5% of the current TV market
- Models that meet these proposed criteria are, on average, 56% more efficient than conventional models.
- 49 out of 849 products would be recognized, across all major sizes
  - Under 35 inches: 30
  - 35 to 50 inches: 9
  - 50+ inches: 10
- 5 manufacturers: Samsung, Sharp, Philips, Funai, and Gold Alliance Electronics



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## Televisions (cont)

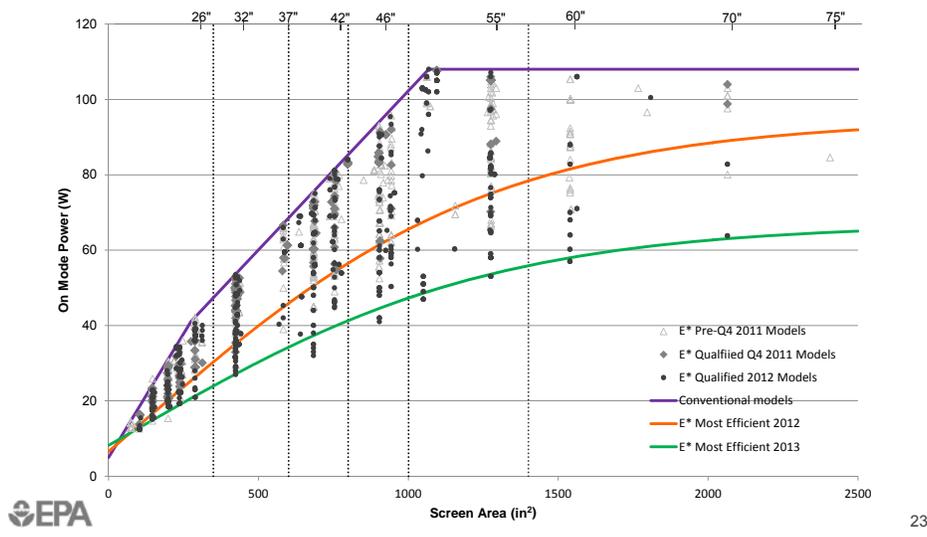


- Selection of top performing products increased rapidly in 2012:
  - Approximately 60 models initially met Most Efficient 2012 criteria when they were finalized.
  - As of mid-September 2012, over 400 models meet Most Efficient 2012 criteria.
- Still opportunity to differentiate top performing models in 2013.



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## Televisions (cont)



## Clothes Washers



- 2013 Proposal:
  - Larger Washers (> 2.5 cu-ft):
    - Strengthen energy-requirement (MEF) from 3.0 to 3.2
    - Strengthen water-requirement (WF) from 3.3 to 3.0
  - Smaller Washers (≤ 2.5 cu-ft):
    - Strengthen MEF from 2.3 to 2.4
    - Maintain WF of 4.5
- Yields 28 washers in a range of sizes, representing approximately 4% of market
- Offers significant energy and water savings
  - Estimated 45% energy savings and 56% water savings relative to the Federal minimum standard
- Products that meet proposed requirements are available from 6 manufacturing partners: Asko, Electrolux, Kenmore, LG, Samsung, and Whirlpool



## Clothes Washers (cont)



- The number of larger (> 2.5) clothes washers meeting the Most Efficient eligibility requirements has more than doubled since late 2011, increasing from 24 to 56
  - Strong stakeholder interest
  - The 2013 criteria offer the opportunity to better differentiate, for consumers, products with the most elite energy and water efficiency
- The number of eligible small ( $\leq 2.5$  cu-ft) has not changed appreciably, but based on the number of models in the marketplace, they are overly represented.
  - 2012 criteria recognize 10 products (out of 22 ENERGY STAR qualified models in this size range)
  - The criteria being proposed for 2013 would narrow this to 5 models from two manufacturers



## Refrigerators



- 2013 Proposal: maintain current requirements
- Rationale:
  - Offers energy savings of 30% + relative to a standard model
  - Offers consumers choice in a range of sizes (11-28 cu-ft) and configurations while still only recognizing a relatively elite number of products -- 78 recognized models (~18 base models)
  - A relatively modest number of new models (~10) have been recognized since 2012 requirements were finalized
- Products that meet the requirements are available from 9 manufacturing partners - Electrolux, GE, Kenmore, LG, Liebherr, Perlick, Samsung, Viking, and Whirlpool



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## Central AC and Air Source Heat Pumps



- 2013 proposal: maintain current requirements
  - Split Systems: 18 SEER, 12.5 EER, 9.6 HSPF
  - Packaged Systems: 16 SEER, 12 EER, 8 HSPF
  - System status, automatic configuration and communications (*see next slide*)
- One exception, propose modified requirements for ductless
  - 20 SEER, 12.5 EER, 9.6 HSPF
  - Filter check and need for service indicators



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## Communication/Status Requirement



- ENERGY STAR Most Efficient HVAC product types must meet communication and status requirements to earn recognition (all but Boilers)
- Encourages quality installation and maintenance, ensuring efficiency and comfort are delivered long term
- Anticipate adding detail to requirements in future as capabilities and market mature



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## Central AC and Air Source Heat Pumps: Rationale



- Maintain Requirements:
  - Recognized products have grown steadily, to 132 products from all major manufacturers, yet less than 0.01% of models on the market
  - Recognized products save at least 20% (packaged) or 25% (split) over standard systems
- Differentiate Requirements for Ductless:
  - Few ductless systems recognized in 2011 or 2012
  - Status and communications requirements originally developed for units not readily visible to occupants
  - Opportunity to capture savings from even higher SEER for ductless systems



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## Geothermal Heat Pumps



- 2013 proposal: maintain current requirements
  - Meet ENERGY STAR requirements for EER and COP
  - System status, automatic configuration and communications
- Rationale:
  - Recognized products increased from 39 at the beginning of the year to 609 now. This means we're now recognizing 5% of models on the market
  - Typically uses half the energy of conventional air conditioning
  - Wide variety of manufacturers participating



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## Furnaces



- 2013 proposal: maintain current requirements
  - 97 AFUE (gas only)
  - System status, automatic configuration and communications
- Rationale:
  - Steady growth in recognized models since instituted
  - Yet, still 1.2% of models on market recognized
  - 131 products recognized from all major manufacturers
  - At least 20% savings compared to standard units



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## Residential Heating Boilers



- 2013 proposal: maintain current requirements of 95 AFUE gas, 90 AFUE oil
- Rationale:
  - 71 gas products recognized from 10 manufacturers, yet only 2.7% of models on market (70 of 3,000)
  - No oil products recognized



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## New – Residential Windows



### Recognition Criteria:

- U-factor  $\leq 0.20$
- SHGC to follow ES Version 5.0
- VT  $\geq 0.40$  so products don't appear dark
- NAFS certification required to help ensure quality/longevity (Performance Grade  $\geq 15$ )

| Climate Zone  | U-factor    | SHGC        | VT          |
|---------------|-------------|-------------|-------------|
| Northern      | $\leq 0.20$ | Any         | $\geq 0.40$ |
| North-Central | $\leq 0.20$ | $\leq 0.40$ | $\geq 0.40$ |
| South-Central | $\leq 0.20$ | $\leq 0.30$ | $\geq 0.40$ |
| Southern      | $\leq 0.20$ | $\leq 0.27$ | $\geq 0.40$ |



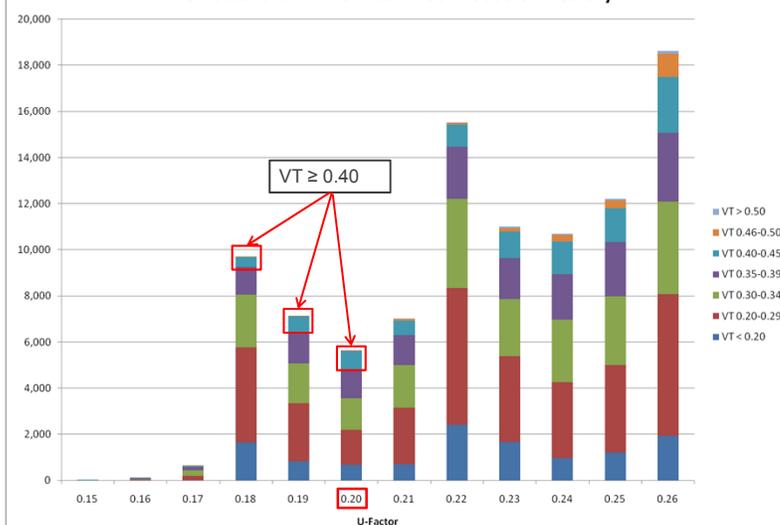
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## New – Residential Windows



U-Factor and VT from Certified Products Directory

Note:  
These  
are  
double-  
hung  
windows  
only

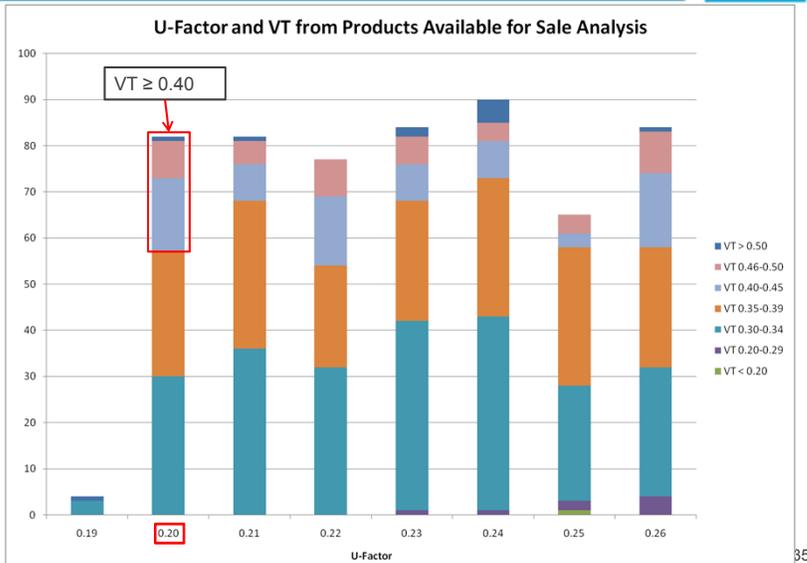


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# New – Residential Windows



Note: These are double-hung windows only

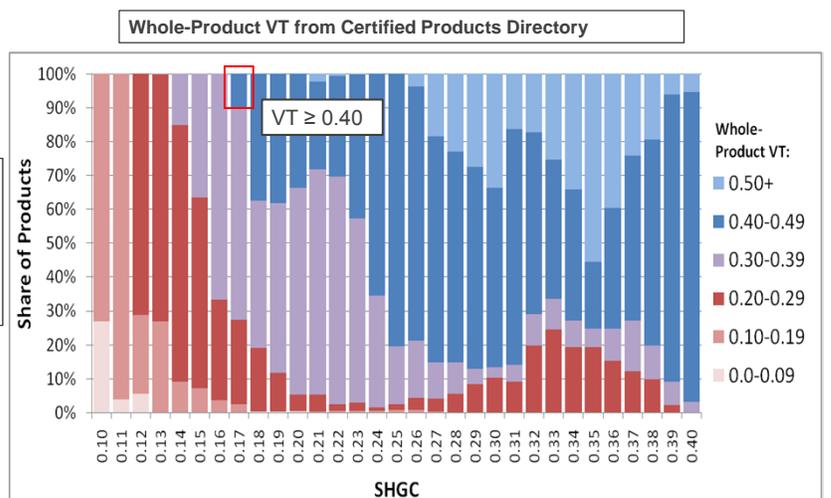


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# New – Residential Windows

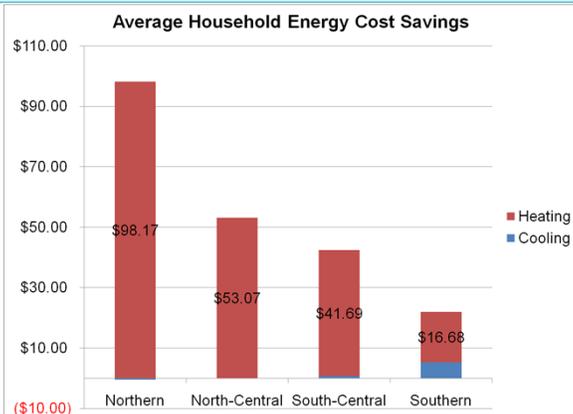


Note: These are double-hung windows only



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## New – Residential Windows



- Modeled whole-house replacements in 22 cities with RESFEN 5.0 using assumptions from Sec. 3.3.2 of *Version 6.0 Draft 1 Criteria and Analysis Report*
- Annual savings modeled using ME (U = 0.20 and SHGC = 0.27) over a best-selling ES window (U = 0.30 and SHGC = 0.28) to get the “upgrade” energy savings potential



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## New – Residential Windows



- Residential windows **only**
  - No commercial products, doors, skylights, TDDs
- Individual products (not lines) will be listed in detail on website (but not prices)
- Partners to submit “recognized product information form” (will be similar to Qualified Products Information Form)



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## New - Computer Monitors

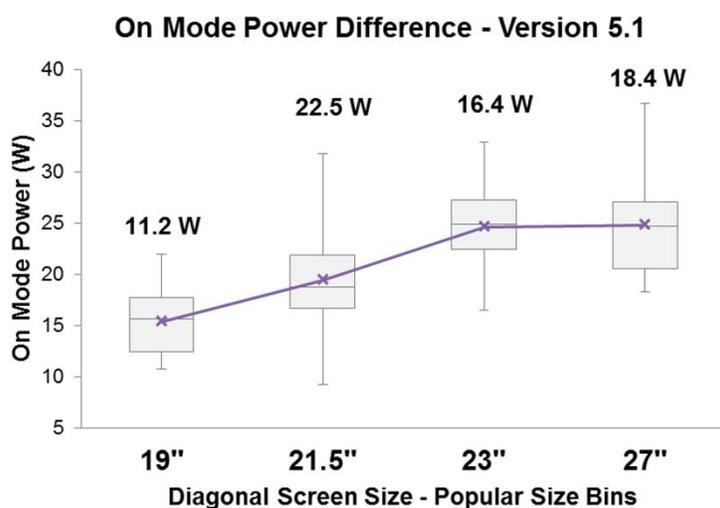


- Captures the top 5% of the current monitor market
- Only products meeting the definition of a computer monitor would be eligible to be Most Efficient 2013. Excludes digital picture frames and signage displays.
- 65 of 1285 products would be recognized, wide selection in top selling segments
  - Small: 6
  - Medium: 58
  - Large: 1
- 20 manufacturers: Including Acer, Asus, Dell, LG, NEC, Phillips, Samsung, View Sonic



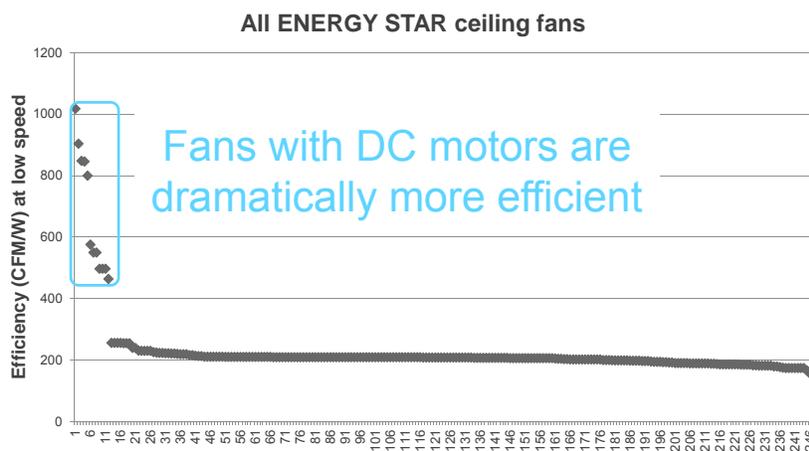
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## New - Computer Monitors (cont)



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## The Opportunity of DC Fans



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## New - Ceiling Fans



- 2013 proposal: Efficiency (cfm/W) 170 high speed, 270 medium speed, 400 low speed
- Uses about 1/3 the energy of standard fan
- 12 models, from 6 manufacturers eligible
  - 5 - 60" models
  - 3 - 54" models
  - 4 - 52" models
- Estimate 8% of total models on the market



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## New - Ventilating Fans



- 2013 proposal:
  - Bathroom/utility fans only
  - 7.5 cfm/W high speed for 10-89 cfm fans
  - 6.8 cfm/W high speed for 90 cfm or higher fans
- Uses less than half the energy of standard fan
- Among the quietest models (key to consumers)
- 36 are multi-speed; 38 are 90 cfm or higher
- Estimate 2.5% of models on market
- 100 models would meet, from 3 manufacturers (Panasonic, Delta Electronics, Broan-Nutone)



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## Proposed Schedule for 2013



- *Mid September distributed draft criteria for comment*
- *Late September, posted pilot evaluation report; host stakeholder webinar*
- **Friday, October 12** stakeholder comments due to [mostefficient@energystar.gov](mailto:mostefficient@energystar.gov)
- Late October finalize 2013 criteria and begin distributing ENERGY STAR Most Efficient 2013 graphic
- Update list of recognized products January 1, 2013



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## Contacts

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**Thank you for your participation today.**

