



ENERGY STAR for Windows, Doors, and Skylights

Discussion Guide Webinar

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Abbreviations

ES = ENERGY STAR

WDS = Window, Door, and Skylight

SHGC = Solar Heat Gain Coefficient

IECC = International Energy Conservation Code

California Title 24 = California Building Energy Efficiency Standard

NFRC = National Fenestration Rating Council

CB = Certification Body (Currently NFRC)

FenStar = NFRC's certification and verification program

DOE = Department of Energy

LBNL = Lawrence Berkeley National Lab

NREL = National Renewable Energy Lab

PNNL = Pacific Northwest National Lab



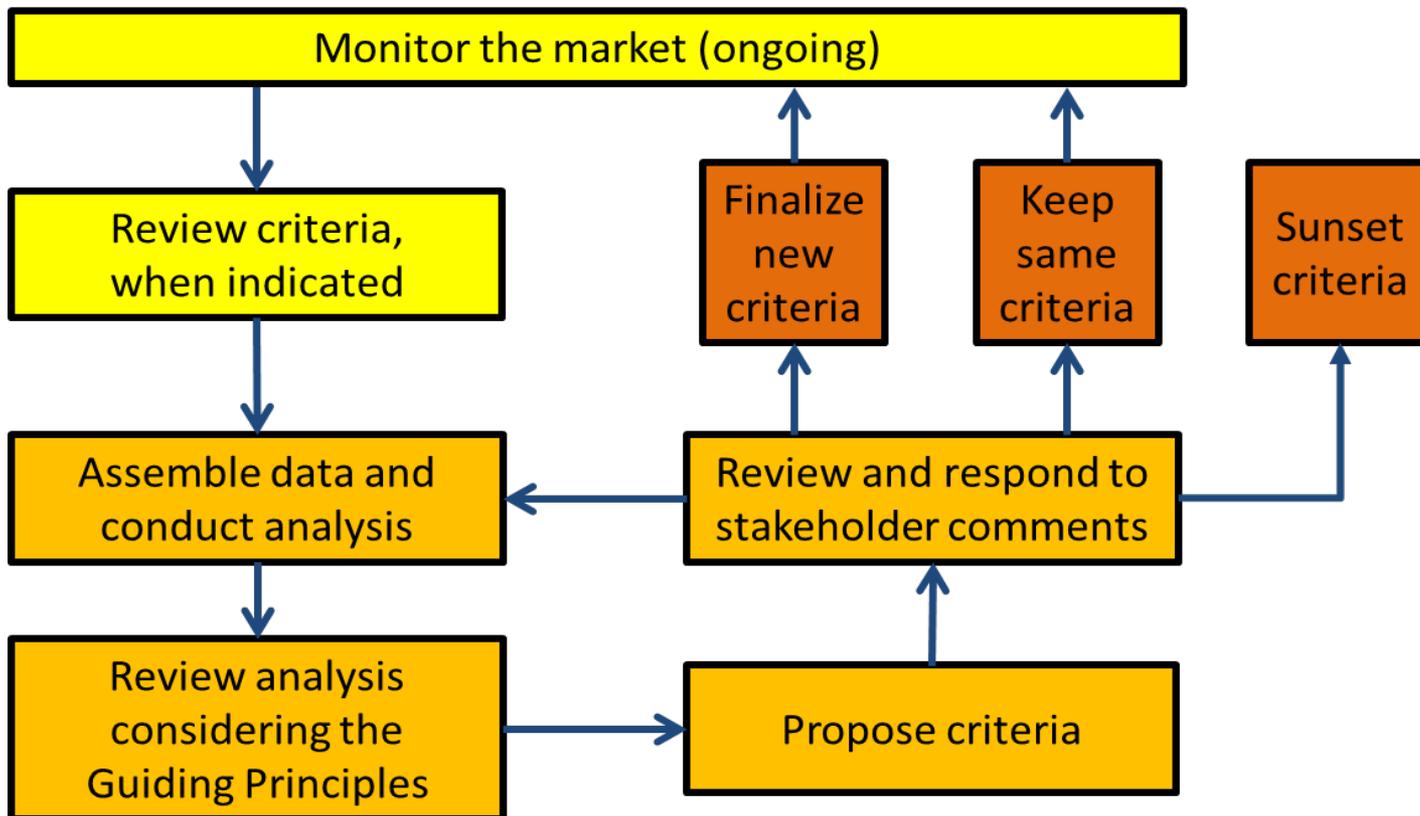
Agenda

- I. Background and Process
- II. Current Market Assessment
- III. Proposed Methodology
- IV. Additional Issues to Consider
- V. Next Steps



Background and Process

ENERGY STAR (ES) Specification Revision Process





ENERGY STAR Guiding Principles

- Significant energy savings on a national basis
- Maintain or enhance product performance
- Reasonable payback period
- Qualifying products are broadly available
- Performance can be measured and verified
- Labeling would effectively differentiate products

NOTE: These are guidance, not a strict checklist



Current Market Assessment

Market Share – Remains relatively high

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Residential Windows	76%	81%	79%	77%	80%	83%	84%	83%	84%
Hinged Entry Doors	70%	71%	73%	74%	76%	77%	79%	78%	80%
All Patio Doors								81%	82%
Skylights – All	70%	70%	68%	62%	60%	62%	65%	64%	68%

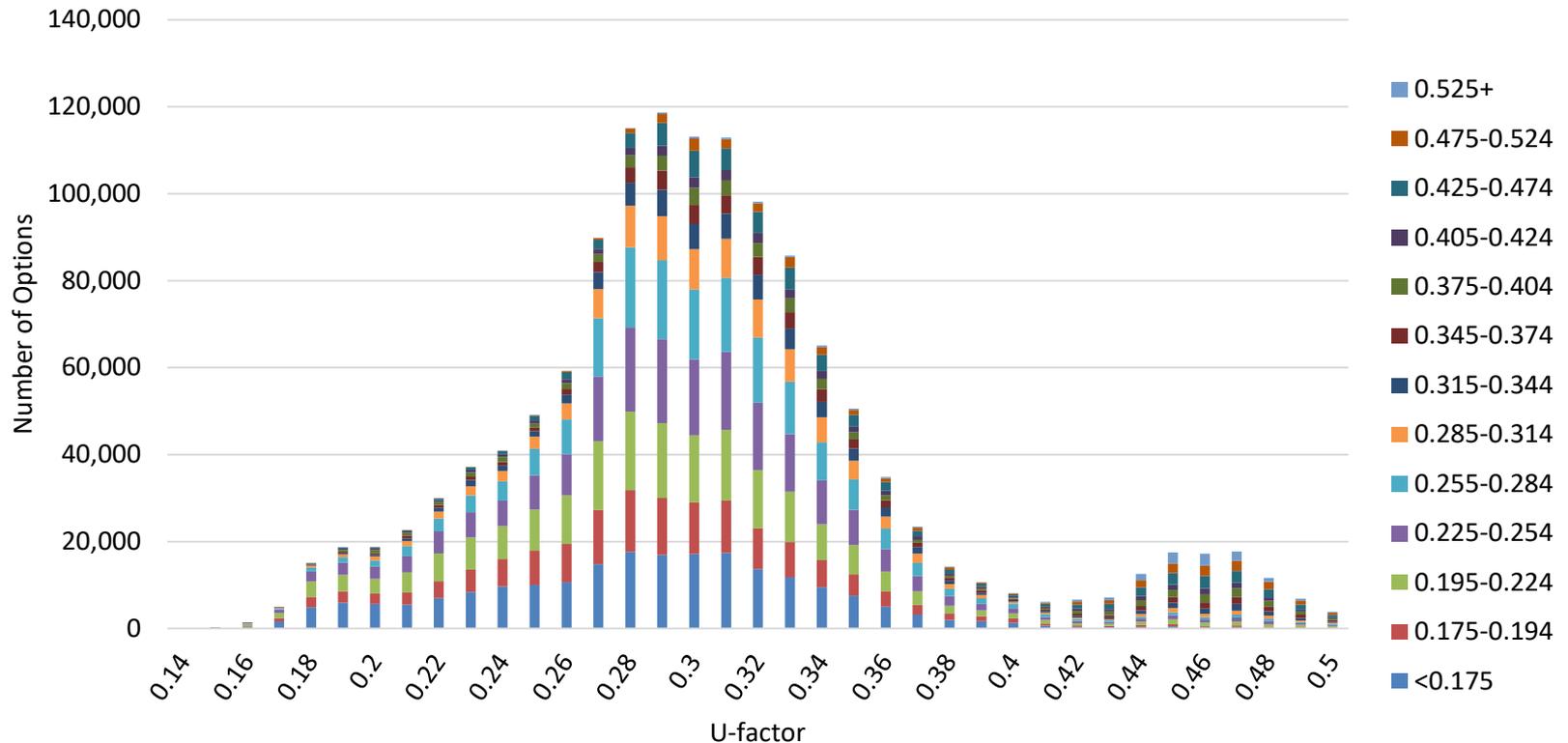
Developments in Energy Codes

- **IECC Building Energy Codes** – proposals that meet or surpass ES
- **California Title 24** – more stringent SHGC of 0.23
- **ENERGY STAR Canada** – lower U factors (windows and skylights)



Market Assessment - Product Availability

2017 data



Product Availability

- Are the NFRC certified product lines selected for FenStar a reasonable proxy for products available for sale? Is there better data?



Proposed Methodology - Costs

- **Component Bill of Materials**
 - EPA invites component manufacturers to share cost data confidentially
 - Only aggregated, anonymous costs will be considered
- **Manufacturer Costs**
 - EPA invites manufacturers to share cost data confidentially
 - EPA will provide an updated template to collect confidential manufacturer costs in a standard format
- **Retail Pricing and Mystery Shopping**
 - Mystery shopping with dealers and installers
 - Retail research at big box stores
 - **Focus will be on low-cost and best selling products**



Proposed Methodology – Energy Savings

Energy Savings

- LBNL and NREL have each developed new building energy modeling tools that use EnergyPlus and have updated weather, population, and residential energy consumption data
- LBNL: Model will utilize PNNL prototype homes from geographically distributed U.S. cities
- NREL: Model will utilize ResStock tool bases household characteristics on a sophisticated statistical sample that accounts for the diversity of the single-family housing stock and climates across the United States



Additional Issues to Consider

Combining Southern and South-Central Climate Zones

- Data from a DOE field study shows builders installing windows consistently already better than current ES levels

Establishing a Minimum SHGC for the Northern Climate Zone

- Greatly reduces low visible transmittance (VT) glass
- Encourages more energy saving, higher SHGC products

Evaluating IECC Zone 5 for the Northern or North-Central Climate Zone

- EPA to consider which ES zone is more appropriate for IECC Zone 5

Applying the Windows Specification to Full-Lite Sliding Patio Doors

- Full-lite sliding patio doors (NFRC type DDSG) are more similar to windows than swinging doors so EPA will consider applying the windows criteria to full-lite sliding patio doors to simplify the specification.



Additional Issues to Consider

Sunseting the ENERGY STAR Swinging Door Criteria

- Last specification revision, paybacks were long – energy impact small.
- Study whether additional cost-effective energy savings are possible for swinging doors.

Simplifying or Sunseting the ENERGY STAR Skylight Criteria

- **Simplification**
 - Rely primarily on the analysis of windows to establish criteria and then add an appropriate adjustment factor to establish the skylight ES criteria to treat both categories in a similar fashion. (See preliminary data in Discussion Guide Appendix B)
- **Sunseting**
 - Last specification revision, paybacks were long – energy impact small.
 - Study whether additional cost-effective energy savings are possible for skylights.



Additional Issues to Consider

Dynamic Glazing and Shading

- Products with dynamic glazing and integrated shading systems are currently available for sale in the market
- Consider clarifying and/or including allowances for dynamic products, as long as energy performance can be measured and verified through physical testing and the schedule properly modeled

High Altitude and Impact Resistance

- 2021 IECC proposals to consider allowances for impact-rated and high-altitude
- EPA has concluded that such allowances are not appropriate for the ES specification
 - It would introduce significant complexity to labeling requirements,
 - Would save less energy over market baselines compared to other ES certified products
 - Products are available that can meet improved ES criteria



Additional Issues to Consider

Extended Implementation Schedule

- Typically, new criteria become effective 9 to 12 months after publication of a final specification document
- EPA is open to extending the implementation schedule to help ensure that there will be products available for sale that meet a potential revised specification

NOTE: EPA has provided questions for stakeholders to consider in the Discussion Guide. Please consider these issues or any others in your response to comments.



Next Steps

Milestone	Expected Date
Due date for Comments on Discussion Guide (DG)	Oct 4, 2019
DG Comments Posted On-Line	Q4 2019
Response to DG Comments Released	Q4 2019/Q1 2020
Criteria Analysis Report (CAR) and <u>Possible</u> Draft 1	Late Q1 or Q2 2020

Please send comments to windows@energystar.gov



Thank you!

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