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

- Monitor the market (ongoing)
  - Review criteria, when indicated
  - Assemble data and conduct analysis
  - Review analysis considering the Guiding Principles
    - Propose criteria
    - Review and respond to stakeholder comments
      - Finalize new criteria
      - Keep same criteria
      - Sunset criteria
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

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</tr>
</thead>
<tbody>
<tr>
<td>Residential Windows</td>
<td>76%</td>
<td>81%</td>
<td>79%</td>
<td>77%</td>
<td>80%</td>
<td>83%</td>
<td>84%</td>
<td>83%</td>
<td>84%</td>
</tr>
<tr>
<td>Hinged Entry Doors</td>
<td>70%</td>
<td>71%</td>
<td>73%</td>
<td>74%</td>
<td>76%</td>
<td>77%</td>
<td>79%</td>
<td>78%</td>
<td>80%</td>
</tr>
<tr>
<td>All Patio Doors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>81%</td>
<td>82%</td>
</tr>
<tr>
<td>Skylights – All</td>
<td>70%</td>
<td>70%</td>
<td>68%</td>
<td>62%</td>
<td>60%</td>
<td>62%</td>
<td>65%</td>
<td>64%</td>
<td>68%</td>
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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

Sunsetting 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 Sunsetting 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)

- Sunsetting
  - 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

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<tr>
<th>Milestone</th>
<th>Expected Date</th>
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<tr>
<td>Due date for Comments on Discussion Guide (DG)</td>
<td>Oct 4, 2019</td>
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<tr>
<td>DG Comments Posted On-Line</td>
<td>Q4 2019</td>
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<tr>
<td>Response to DG Comments Released</td>
<td>Q4 2019/Q1 2020</td>
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<tr>
<td>Criteria Analysis Report (CAR) and Possible Draft 1</td>
<td>Late Q1 or Q2 2020</td>
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Please send comments to windows@energystar.gov
Thank you!

Contact Information:

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