Update on ENERGY STAR® Dehumidifier Specification Revision

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Presentation Outline

- Market status and review of current specification
- Revision options under consideration
- Next steps and timeline
Market Snapshot

- 2003 shipments of dehumidifiers approximately 1,311,039 units*
- 2003 installed base approximately 11,308,000 units**
- On average, estimated 12% growth in annual shipments over past 5 years*
- Annual shipments best approximation of annual installed base
- Over 180 dehumidifier models currently available in market-place***

**Estimates form CCAP data
***Source: AHAM's May 2004 Directory of Certified Dehumidifiers and ENERGY STAR Qualified Products list
## Current ENERGY STAR Dehumidifiers Specification

<table>
<thead>
<tr>
<th>Product Capacity (L/day)</th>
<th>Energy Factor Under Test Conditions (L/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/day &lt; 10</td>
<td>≥ 1.20</td>
</tr>
<tr>
<td>10 ≤ L/day &lt; 25</td>
<td>≥ 1.30</td>
</tr>
<tr>
<td>25 ≤ L/day &lt; 35</td>
<td>≥ 1.50</td>
</tr>
<tr>
<td>36 ≤ L/day &lt; 57</td>
<td>≥ 2.25</td>
</tr>
</tbody>
</table>

- Effective January 1, 2001
- 13 manufacturing partners/107 qualified models to-date
- Qualified models currently between 10% - 23% more efficient than standard models; save about $20/year
## ENERGY STAR Products in the Market-Place

<table>
<thead>
<tr>
<th>Product Capacity (L/day)</th>
<th>Number of Qualified Products</th>
<th>Number of Manufacturers With Qualified Products</th>
<th>Average Retail Price of Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/day &lt; 10</td>
<td>2</td>
<td>1</td>
<td>$130</td>
</tr>
<tr>
<td>10 ≤ L/day &lt; 25</td>
<td>81</td>
<td>11</td>
<td>$160</td>
</tr>
<tr>
<td>25 ≤ L/day &lt; 35</td>
<td>22</td>
<td>9</td>
<td>$220</td>
</tr>
<tr>
<td>36 ≤ L/day ≤ 57</td>
<td>2</td>
<td>1</td>
<td>$1,200</td>
</tr>
</tbody>
</table>

Variety of qualified models readily available at all major retailers

Several utility programs in place for ENERGY STAR qualified dehumidifiers
Market Penetration of ENERGY STAR Qualified Dehumidifiers

- Estimated ENERGY STAR market penetration*:
  - 0% for L/day < 10
  - 76% for 10 ≤ L/day < 25
  - 76% for 25 ≤ L/day < 35
  - 12% for 36 ≤ L/day ≤ 57

- Dehumidifiers specification has been a success
- Major manufacturers are ENERGY STAR partners
- Time to revise specification
  - Differentiation in the market
  - Additional savings

* Source: Collection of 2003 unit shipment data of ENERGY STAR qualified models
Energy-Efficiency Range of ENERGY STAR Qualified Dehumidifiers

Energy Factor versus Product Capacity for ENERGY STAR® Qualified Dehumidifiers
Revision Option 1

- Leave energy factors for lowest and highest capacity units unchanged
- Raise energy factors for two middle capacities by 0.3 L/kWh respectively

<table>
<thead>
<tr>
<th>Product Capacity (L/day)</th>
<th>Option 1 Energy Factor Under Test Conditions (L/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/day &lt; 10</td>
<td>1.2 (no change)</td>
</tr>
<tr>
<td>10 ≤ L/day &lt; 25</td>
<td>1.6 (changed from 1.3)</td>
</tr>
<tr>
<td>25 ≤ L/day ≤ 35</td>
<td>1.8 (changed from 1.5)</td>
</tr>
<tr>
<td>36 ≤ L/day ≤ 57</td>
<td>2.25 (no change)</td>
</tr>
</tbody>
</table>
Revision Option 2

- Redefine capacities in pints/day
- Add an additional middle capacity level
  - Realize inherent increase in efficiency with capacity
- Leave energy factors for lowest and highest capacity units unchanged

<table>
<thead>
<tr>
<th>Product Capacity (Pints/day)</th>
<th>Option 1 Energy Factor Under Test Conditions (L/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pints/day &lt; 20</td>
<td>1.2 (no change)</td>
</tr>
<tr>
<td>20 ≤ Pints/day &lt; 35</td>
<td>1.4</td>
</tr>
<tr>
<td>35 ≤ Pints/day &lt; 55</td>
<td>1.6</td>
</tr>
<tr>
<td>55 ≤ Pints/day &lt; 75</td>
<td>1.8</td>
</tr>
<tr>
<td>75 ≤ Pints/day &lt; 120</td>
<td>2.25 (no change)</td>
</tr>
</tbody>
</table>
Revision Option 3

- Redefine capacities in pints/day
- Leave energy factors for lowest and highest capacity units unchanged
- Energy factors for middle capacity levels calculated through linear formula; follows inherent relationship between efficiency and capacity

<table>
<thead>
<tr>
<th>Product Capacity (Pints/day)</th>
<th>Option 3 Energy Factor Under Test Conditions (L/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pints/day &lt; 20</td>
<td>1.2 (no change)</td>
</tr>
</tbody>
</table>
| 20 ≤ Pints/day ≤ 75 | EF = 1.1 + (Capacity * 0.011)  
Capacity in pints/day |
| 75 ≤ Pints/day < 120 | 2.25 (no change) |
Next Steps: Stakeholder Input

• Want to get feedback on market impacts of these different options
  – EPA open to other options

Things to Think About:

• Should EPA revisit levels for lowest and highest capacity units?
  – Only 4 qualified products in these capacities to-date
  – Possibly allow more units to qualify by raising the levels?
• Should EPA redefine capacities in pints/day?
• New technologies or product-types that EPA should consider?
Tentative Time-line

Oct. 4, 2004: ENERGY STAR Appliance Partner Meeting, Chicago, IL
Late Oct. 2004: Distribute Draft 1 (Version 2.0) dehumidifier specification for comment/feedback
Mid Nov. 2004: Potential industry meeting in Washington, DC to discuss Draft 1
Late Dec. 2004: Distribute Draft 2 (Version 2.0) specification for comment/feedback
Late Feb. 2005: Issue Final Version 2.0 specification
March 2005: Launch Final Version 2.0 specification at International Housewares Show
November 2005: Tentative effective date of Version 2.0 specification