ENERGY STAR Dishwashers

Campaign Possibilities for 2006
Dishwasher Market Snapshot

- 2004 ENERGY STAR market share at 78%
- Small per-unit savings ($9-10/year)
  - Not that compelling to consumers
  - EEPS interest is lagging
- Limited differentiation opportunities for industry
- Current household saturation is 59.5%
Dishwasher Stakeholder Meeting

- Currently reviewing suggestions for 2007 criteria
  - Energy Factor (EF)
  - Stand-by Power
  - Water Factor
  - Cleaning Performance

- Several stakeholders suggested DOE drive a campaign targeting consumer dishwashing habits
Campaign Development

• DOE has been working with Whirlpool and Procter & Gamble
• Assessing feasibility of a dishwasher campaign by asking:
  – Who would be the target audience
  – What would we be asking them to do
  – How could success be quantified (i.e., energy savings, increase in sales, etc)
Opportunity:

1. Increase household saturation of ENERGY STAR qualified dishwashers
2. “Scrape don’t Rinse” campaign
Encourage the Energy Savings of Dishwashers

- Industry wide campaign targeting home owners who do not own a dishwasher

- Educate consumers on the substantial water/energy savings achieved when using a dishwasher vs. hand washing

- Secondary message instructing dishwasher owners to scrape dishes instead of rinsing them before loading the dishwasher.
Technologies to Support Energy Savings

- ENERGY STAR Dishwashers
  - Sensors
    - More efficient cycles
      - Less pre-washes in low soil loads
      - Less added heat in low soil loads

- Detergent
  - Enzymes
    - Remove stuck on soils
Dishwasher Saturation Target

- 59.5% Overall Household Saturation*
- 70% Owner-Occupied HH Saturation **

Who doesn’t own a Dishwasher??

- Suburban part of MSA 9,427,000
- Elderly (+65) 6,823,000
- Outside MSA 6,700,000
- Midwest Census Region 6,592,000
- Central City of MSA 5,809,000
- African American 3,320,000
- Below Poverty Level 3,272,000
- Manufactured/mobile homes 2,803,000
- Hispanic 2,486,000

* AHAM

** American Housing Survey 2003, U.S. Census Bureau, Housing & Household Economic Statistics Division
Who Doesn’t Own a Dishwasher

Owner-Occupied Housing Units With and Without Dishwashers (Thousands)

<table>
<thead>
<tr>
<th>Category</th>
<th>With a Dishwasher</th>
<th>Without a Dishwasher</th>
<th>% without dishwasher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suburban part of MSA</td>
<td>30,297</td>
<td>9,427</td>
<td>24%</td>
</tr>
<tr>
<td>Elderly (65+)</td>
<td>10,527</td>
<td>6,823</td>
<td>39%</td>
</tr>
<tr>
<td>Outside MSA</td>
<td>9,113</td>
<td>6,700</td>
<td>42%</td>
</tr>
<tr>
<td>Midwest census region</td>
<td>11,297</td>
<td>6,592</td>
<td>37%</td>
</tr>
<tr>
<td>Central city of MSA</td>
<td>10,892</td>
<td>5,809</td>
<td>35%</td>
</tr>
<tr>
<td>African American</td>
<td>2,873</td>
<td>3,320</td>
<td>54%</td>
</tr>
<tr>
<td>Manufactured/mobile homes</td>
<td>2,711</td>
<td>2,803</td>
<td>51%</td>
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<tr>
<td>Hispanic</td>
<td>2,620</td>
<td>2,486</td>
<td>49%</td>
</tr>
<tr>
<td>Moved in past year</td>
<td>4,270</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>
Who Doesn’t Own a Dishwasher

- Single person household - 50%
- Single parent household - 51%
- Young, under 30 - 44%
- Elderly, over 65 - 49%

Virginia Polytechnic Institute and State University Study (2000) by Dr. JoAnn Emmel, et. al.
Why They Don’t Own a Dishwasher

- Don’t have space - 47%
- Don’t want to spend the money – 33%
- Dishwashers don’t clean well enough – 27%
- Don’t need one – 27%
- They use too much energy – 20%

Hand Washing Uses A Lot of Water and Energy

• Ohio State Study (1988-89)
  – 8 Place Settings
  – Used a total of 16 gallons of water

• University of Bonn
  – 12 Place Settings
  – Used a total of 27 gallons of water
Increasing Dishwasher Saturation Saves Water/Energy

- ENERGY STAR dishwasher uses ~ 7 gallons of water on average.
- Dishwasher holds 12+ place settings of dishes
- Switching from hand washing to an ENERGY STAR dishwasher could potentially result in substantial water and energy savings
  - ~24 → 7 gallons
  - Save energy from heating water
Pre-treating Uses a Lot of Water/Energy

- ~70% of households pre-rinse dishes with water (A. Little)
- Estimate 20 gallons used to pre-rinse

Arthur D. Little Report – 12/01
Why Consumer Pre-rinse

- Dishes won’t be washed right away 39%
- Dishes won’t come clean 35%
- Habit 28%

Virginia Polytechnic Institute and State University Study (2000) by Dr. JoAnn Emmel, et. al.
Scrape is Enough

• Dishwashers have improved wash systems
  – multiple spray arms so water reaches all surfaces
  – Sensors ensure sufficient purges and/or pre-washes so soils aren’t redeposited

• Detergents are effective at handling soils
  – contain enzymes to break down stuck on soils
  – contain soil suspension ingredients so soils rinse efficiently
Basic Approach

- Educate consumers on the benefits of using an ENERGY STAR qualified dishwasher vs. hand washing
- Educate consumers on the water/energy savings achieved by scraping dishes instead of rinsing them before loading the dishwasher.
  - Work with retailers and manufacturers to integrate messaging into product materials
  - Work with EEPS and water utilities to educate their customers
  - DOE media outreach, PR, web, etc.
Expanding Household Saturation

- Potential goal - Increase household saturation by 1.5% (1,582,202 units)

- Potential annual savings:
  - 1.53 trillion Btu
  - 4.7 billion gallons
  - $34.3 million
Scrape Don’t Rinse Campaign

- Potential goal – Reduce number of consumers who pre-rinse by 5% (1,882,820 consumers)

- Potential annual savings:
  - 1.44 trillion Btu
  - 37.6 million gallons water
  - $59.6 million
Win, Win, Win

• A successful dishwasher campaign could:
  – increase market for all manufacturers and retailers
  – provide opportunity to capture significant quantifiable savings
  – offer partners a cost-effective way of educating consumers to modify habits
Next Steps

- DOE will lead a working group of interested industry, retail, and EEPS partners.
- Will begin holding conversations this fall to determine possible campaign for 2006.