Low-Income Weatherization Benefits for Consumers and Utilities in Cincinnati, Ohio

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Cadmus Areas of Expertise

- Resource Planning & Forecasting
- Program Design & Evaluation
- Clean Energy
- Marketing & Communications
- Regulatory Support
People Working Cooperatively

**Modifications for Mobility**
- Indoor and outdoor handrails
- Grab bars in bathrooms and other rooms
- Indoor and outdoor wheelchair ramps
- Indoor stair lifts
- Tub cuts
- Bathroom modifications
- Kitchen modifications
- Installation of roll-in showers

**Home Repairs**
- Safety repairs to porches and decks
- Plumbing repairs/replacement
- Safety repairs for electric/wiring
- Roof repair/replacement
- Furnace replacement

**Energy Conservation Services**
- Home energy audit
- Energy-efficient lighting
- High-efficiency faucet aerators and showerheads
- Air sealing
- Floor, attic, wall and insulation
- Duct sealing
- Cleaning and tuning of HVAC equipment
- Furnace replacement
- Carbon monoxide and fire detectors
- Energy-efficiency education
- Refrigerator replacement

**Volunteer Services**
- Raking and yard maintenance
- Washing windows
- Gutter cleaning and repair
- Installation of storm windows
- Installation and repair of handrails and grab bars
- Plumbing maintenance and repair
- Constructing and installing ramps
- Bathroom modifications
- Miscellaneous small home repairs
## Program Benefits

### Societal Benefits
- Avoidance of subsidized housing
- Home property value increase
- Local economic benefits
- Environmental benefits
- Reduction in student mobility

### Consumer Benefits
- Reduced energy expenses/energy burden
- Increased ability to care for home
- Increased mobility independence
- Reduction in forced relocation
- Improved Health

### Utility and Ratepayer Benefits
- Energy and demand savings
- Avoided utility costs
- Fewer shut offs/disconnections
- Improved consumer payment patterns
- Lower collection expenses
- Reduced gas emergencies
Energy Savings

• 2,829 Energy Conservation Participants
• 2,700 MWh
• 400,000 therms
• Annual Average Participant Energy Savings=$284
Bill Payment Impacts

- Over $200,000 in additional bill payments
- $870,000 reduction in arrearage accrual
- Decrease average energy assistance of 43%
Increased Property Values

• County assessor - 7,400 single-family sales 2000-2010.

• Comparison of sales prices of 68 homes treated by PWC

<table>
<thead>
<tr>
<th>Type of Home</th>
<th>Impact</th>
<th>Dollar Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received PWC Services</td>
<td>10.6%</td>
<td>$7,000 (average cost of PWC home = $70,000)</td>
</tr>
<tr>
<td>Neighbors a PWC Home</td>
<td>3.8%</td>
<td>$4,000 (average cost of neighboring non-PWC home = $104,000)</td>
</tr>
</tbody>
</table>
Community Economic Impacts

- PWC’s wages, benefits, materials, supplies, subcontractors, and professional services expenditures
- $10.9 million resulted in a net additional $3.6 million in local economy
- Participating households additional spending increased economic activity by $1.5 million.
Environmental Impacts

- Reduced carbon dioxide emissions by 2,103 tons (372 fewer cars)

- Methane (50 lbs), nitrous oxide (69 lbs), nitrogen oxide (3,630 lbs), and sulfur dioxide (16,327 lbs).
THANK YOU!

Jamie Drakos, Cadmus
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SUPPLEMENTAL SLIDES
## Change in Consumer Payments

<table>
<thead>
<tr>
<th>Payment Type</th>
<th>PIPP Households</th>
<th>Non PIPP Households</th>
<th>Total Program</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Change Pre -Post</td>
<td>Change Pre -Post</td>
<td></td>
</tr>
<tr>
<td>Total Annual Payments</td>
<td>$73</td>
<td>$68</td>
<td>$200,348</td>
</tr>
<tr>
<td>Energy Assistance Payments</td>
<td>($79)</td>
<td>($68)</td>
<td>($204,700)</td>
</tr>
</tbody>
</table>
## Reduction in Arrearages

<table>
<thead>
<tr>
<th></th>
<th>Change in Arrearage Accural</th>
<th>Total Program Pre Post Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Period</td>
<td>Post Period</td>
</tr>
<tr>
<td>PIPP Households</td>
<td>$1,134</td>
<td>$473</td>
</tr>
<tr>
<td>Non PIPP Households</td>
<td>$247</td>
<td>$144</td>
</tr>
</tbody>
</table>
Reduction of Forced Mobility

• 87% of participants helped to remain in homes
• 17% would have been forced to move
  – 3.5% would have moved to subsidized or public housing
  – 13% would have moved to a nursing home
Reduction of Forced Mobility: Housing Cost Savings

• Section 8: $6,400/year/household
• Public Housing: $8,600/year/household
  – 84 of 2,390 participants avoided subsidized housing
• Nursing Home: $54,000/year/person
  – 310 of 2,390 participants avoided nursing home or assisted living
Reduction of Forced Mobility: Student Performance

- 35% participant homes have school-aged children.
- Hamilton County school district data for 10 years – standardized test scores and student mobility.

<table>
<thead>
<tr>
<th>Test</th>
<th>Time at School: 1 to 2 Years</th>
<th>Time at School: 3 Years or More</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>66%</td>
<td>81%</td>
<td>15%</td>
</tr>
<tr>
<td>Math</td>
<td>57%</td>
<td>73%</td>
<td>16%</td>
</tr>
</tbody>
</table>

- Other students at schools with higher levels of mobility also had reduced test scores.
Improved Health

• 44% of participants - health improved as a result of PWC services
  – 15% of these respondents see their doctors less as a result

• 84% said helped reduce their stress
Improved Mobility

• 91% reported increased ability to move around (in/out of home)

• Fewer falls and less fear of falling
  – US Centers for Disease Control reports that costs for fall injuries in people 65 and over are almost $5,000 each