Post Wood Stove Changeout Evaluation: Results and Lessons Learned

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Project Background
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Program Overview and Requirements

- Consent Decree, U.S. v Consumers Energy Company, Civil Action 14-13580
- Non-EPA certified appliances
- Surrender old appliances
- Professional status
- City or county codes/ordinances.
- Proper operation of new appliance and wood moisture meter
Qualifying Appliances

- EPA-certified wood stove (freestanding or insert)
- EPA-certified wood-pellet stoves
- EPA-certified hydronic heater
- New gas stove or gas stove insert (natural gas or propane)
- Energy Efficient gas furnace or boiler
- Woodstove catalyst retrofit / replacement
- EPA Qualified retrofit device (for open fireplaces)

Burn Wise - Types of Appliances: https://www.epa.gov/burnwise/burn-wise-types-appliances
Project Background

Program Start Date: August 8, 2016

Phase I: Income Qualified Pilot Program
Phase II: Burn Wise Awareness Campaign
Phase III: General Residential Program

Proper Operation Initiative
Results: Basic Information

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td># of surveys distributed</td>
<td>294</td>
</tr>
<tr>
<td># of surveys completed</td>
<td>174</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Online</td>
<td>22</td>
</tr>
<tr>
<td>Paper</td>
<td>152</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Response Rate</td>
<td>59.2%</td>
</tr>
</tbody>
</table>
## Results

### Question Categories

| Section I: Required Gas / Wood Appliances | • Learning to use new appliance  
| | • Purchase trends  
| | • Appliance usage |
| Wood Appliances Only | • Burn Wise documents  
| | • Wood Moisture Meter Usage  
| | • Firewood Storage  
| | • New wood appliance effects |
| Section II: Optional Gas / Wood Appliances | • Voucher effects  
| | • New appliance operation  
| | • Program Impact |
Results
Learning to Use the New Appliance

Did you receive an owner's manual for your new appliance?

- Yes: 166
- No: 4
- Not sure: 3
- No Response: 1
Results
Learning to Use the New Appliance

Did the retailer and/or installer show/tell you how to use your new appliance?

- Yes: 166
- No: 7
- Not sure: 1
Results
Learning to Use the New Appliance

What resources did you find useful in operating your new stove?

<table>
<thead>
<tr>
<th>Resource</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailer/Installer instructions</td>
<td>131</td>
</tr>
<tr>
<td>Owner's manual</td>
<td>136</td>
</tr>
<tr>
<td>Other information you received from retailer/installer</td>
<td>23</td>
</tr>
<tr>
<td>Other</td>
<td>35</td>
</tr>
</tbody>
</table>
Results
Learning to Use the New Appliance

If you checked "other", please describe the other resource(s) you found useful in operating your new stove:

- Previous woodstove experience
- DVD supplied with new appliance (Green Smart)
- Installer demonstration
- Online blogs on proper burning, cutting, and splitting
- Online videos (youtube.com, manufacturer’s site)
- Trial & Error
Results
Purchase Trends

Were you already planning to purchase a new appliance when you first heard about the program?

- Yes: 74
- No: 72
- Not sure: 28
Results
Purchase Trends

When would you have purchased a new appliance if this program had NOT been offered?

- This year: 38
- In more than 3 years: 18
- In the next 3 years: 55
- Never: 14
- Not sure: 47
- No response: 2
Results
Purchase Trends

What are the main reasons you decided to buy a new appliance?

- Lower energy costs: 111
- Safety: 106
- Health benefits: 95
- Saving money: 81
- Saving on wood: 74
- Better looking appliance: 56
- Other: 51
- No response: 1

Lower energy costs and safety are the most common reasons for purchasing a new appliance.
Results
Purchase Trends

If you checked "other", please explain the other reason(s) you decided to buy a new appliance:

- Ease of use
- Voucher
- Broken and/or aged appliance
- Convenience of gas or wood pellets: reduced labor
- Tired of mess from wood and smoke in house
- Environmental awareness
- Glass doors
- Clearance
- Chimney fire
- Age
- Natural gas access
Results
Appliance Usage

Use of old stove vs new stove during heating season

- **Everyday**: 70 Old, 96 New
- **Most days**: 34 Old, 54 New
- **Sometimes**: 42 Old, 19 New
- **Rarely**: 24 Old, 2 New

American Lung Association
Results
Appliance Usage

How have your home heating bills changed with the use of your new appliance compared to this time last year (i.e. winter of 2017)?

- Increased: 29
- Decreased: 61
- Stayed the Same: 34
- Not sure: 49
- No response: 1

(Data percentages shown)
Results
Burn Wise Documents

Did you receive best burn practices flyers and/or brochures?

- Yes: 30
- No: 11
- Not sure: 11
Results

Burn Wise Documents

**WET WOOD IS A WASTE**

**BURN DRY FIREWOOD TO SAVE MONEY AND HEALTH**

**Four Easy Steps to Dry Firewood**

1. **SPLIT**
   - Split wood to the house.
   - Follow the area’s burning bans.
2. **STACK**
   - Place wood in the sun on a warm day.
   - Move wood when the area’s burning bans are lifted.
3. **COVER**
   - Cover wood with a tarp or other weatherproof material.
   - Tarp must be completely full of wood.
4. **STORE**
   - Store wood in a dry, well-ventilated area.

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**Burn Wise Test Your Wood with a Moisture Meter**

**Burn Wise: Do you have a Dirty Little Secret?**

**Burn Wise Test Your Wood with a Moisture Meter**

- **Clean** interiors from your wood burning appliance.
- **Season** firewood.
- **Keep** your chimney clean.

**Burn Wise: Test Your Wood with a Moisture Meter**

- **Clean** interiors from your wood burning appliance.
- **Season** firewood.
- **Keep** your chimney clean.

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**AMERICAN LUNG ASSOCIATION**
Results
Burn Wise Documents

How helpful was the *Wet Wood is a Waste* brochure?

- Very helpful: 10
- Somewhat helpful: 5
- Not so helpful: 2

Very helpful
Somewhat helpful
Not so helpful
Results
Burn Wise Documents

How helpful was the *Your Old Wood Stove's Dirty Little Secret* brochure?

- Very helpful: 1
- Somewhat helpful: 7
- Not so helpful: 3
- Not at all helpful: 1

[Diagram showing the distribution of responses]
Results
Burn Wise Documents

How helpful was the *How and Why to Use a Moisture Meter* flyer?

- 13 Very helpful
- 10 Somewhat helpful
Results
Burn Wise Documents

How helpful was the **Burn Wise Tips** sheet?

- Very helpful: 10
- Somewhat helpful: 1
- Not so helpful: 1
- Not at all helpful: 1
Results
Burn Wise Documents

Very Useful Ratings

<table>
<thead>
<tr>
<th></th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet Wood is a Waste</td>
<td>58%</td>
</tr>
<tr>
<td>Your Old Wood Stove's Dirty Little Secret</td>
<td>25%</td>
</tr>
<tr>
<td>Moisture Meter</td>
<td>57%</td>
</tr>
<tr>
<td>Burn Wise Tip</td>
<td>45%</td>
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</tbody>
</table>

Wet Wood is a Waste

Your Old Wood Stove's Dirty Little Secret

Moisture Meter

Burn Wise Tip

AMERICAN LUNG ASSOCIATION®
Results
Wood Moisture Meter

Did you receive a wood moisture meter with your new wood burning appliance?

- Yes: 40
- No: 11
- Not sure: 1
Results
Wood Moisture Meter

When using your new wood burning appliance, how often do you use a wood moisture meter to test your firewood?

- **Always**: 1
- **Most of the time**: 11
- **Sometimes**: 16
- **Rarely**: 12
- **Never**: 12
Results
Wood Moisture Meter

Did the retailer or installer show/tell you how to use the moisture meter or provide you with an informational flyer?

- Yes: 33
- No: 19
- Not sure: 1
If you use a wood moisture meter, what is the moisture content of the firewood that you usually burn?

- Less than 20%: 30
- 20% - 40%: 5
- More than 40%: 0
- Not sure: 12
Results
Firewood Storage

How do you store your firewood? (Check ALL that apply)

- Covered: 39
- Off the ground: 29
- In a woodshed: 21
- Inside the house: 13
- Other: 10
Results
Firewood Storage

If you checked "other", please explain below the other way(s) you store your firewood:

- Week supply stored inside. The pile to replenish is stacked outside, uncovered.
- In the garage
- Purchased, stacked to season, and then stored in garage
- Next to shed
- On covered and/or screened porch
- Outside: once it is split, it’s stored in unheated garage
- Split, stacked on 16 foot trailer, and covered with tarp
Results
Firewood Storage

How many months do you store firewood before burning it?

- More than 12 months: 19
- 6 - 12 months: 22
- Less than 6 months: 2
- I buy seasoned wood: 11
- Not sure: 1
Results
New wood appliance effects

How much wood have you been burning this winter compared to this time last year (i.e. winter of 2017)?

- More: 13
- Less: 28
- About the same: 8
- Not sure: 4
Results
New wood appliance effects

How much smoke is in your home now that you have a new appliance compared to this time last year (i.e. winter of 2017)?

- More: 2
- Less: 39
- About the Same: 7
- Not sure: 4
Results

Voucher effects

How important was receiving the voucher in your decision to replace your old appliance?

- Very important: 132
- Somewhat important: 25
- Neutral: 7
- Not so important: 3
- Not at all important: 1
- No response: 6
Results
New appliance operation

Is your new appliance operating to your expectations?

- Yes: 149
- No: 5
- No response: 20

(Chart showing the distribution of responses.)
Results
New appliance operation

If you answered "no", in what ways is your new appliance NOT operating to your expectations?

- Harder to start than old stove: 2
- More complicated: 3
- Less heat produced compared to old stove: 9
- More smoke in house: 2
- Other: 18
Results
New appliance operation

If you answered "other", please type in a description of the other way(s) your new appliance is not operating to your expectations.

✓ It does a nice job and heating the house evenly, but it does burn more fuel that I expected from a high efficient, modulating boiler.
✓ Increase in electricity bill
✓ Requires more maintenance
✓ Has to be vacuumed every 3 days
✓ Requires a special firewood length
✓ Different kind of heat
✓ Big learning curve to learn how to use
✓ Lack of adequate airflow
✓ Cleaning is by far messier with the finer ash
Results
Program Impact

From what you understand, what was the woodstove changeout program all about?
✓ Better air: inside and out / reducing air pollution
✓ Lower heating bills
✓ Lower energy use
✓ Higher efficiency
✓ Safer appliances
✓ Health benefits and prevention, improve lung health
✓ Protect natural environment
✓ For me to save money
✓ Saving trees
Results
Program Impact

Please provide a brief testimonial (1 - 2 sentences) below describing your experience with the woodstove changeout program.

• As a participant in the MI Woodstove Changeout Program, I am thankful for the American Lung Association opportunity to help me changeout my wood burning fireplace for a gas unit. We are now breathing cleaner air (several household members have lung problems including our 4 year old) and heating more efficiently. No ashes or ash dust to bother with or breathe. This was a wise health decision for us to make. Thank you, ALA, for your grant. Peace & Blessings. -Sharron A., Kalamazoo, MI
Results
Program Impact

• Cannot express how happy we are with our new wood stove. The ALA promotion not only saved us costs but also helped us decide that upgrading our wood stove was beneficial not just in cost but health for us and those around us. The new wood stove is also for easier to operate. It provides a better warmth throughout the house. Very happy that we participated and got this done. -Steve B., Casco, MI

• Every time I walk in my living room I am proud of my decision to purchase my gas burning insert through the program. I tell all my friends about it, and I use my fireplace all the time. Thank you!!! –MI Woodstove Changeout Participant
Results

Program Impact

- Eliminating my old wood fireplace and wood box was the best thing I have done. My home is so much cleaner, and I get the same amount of heat for less money! - Bay Area Home Owner

- Having our woodstove changed out has helped my kids' allergies. They are having less allergy issues this year and our home is so much less dry. My children breath easier now.

- I am very happy with the woodstove changeout program. I burn wood in my woodstove year round, and the efficiency of the stove and reduced amount of smoke is a win in my book. -Mark H.
Lessons Learned

✓ Burn Wise material
✓ Wood Moisture Meter
✓ More initial retailer outreach
✓ Evaluation piece was critical!
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