Delivering Energy Savings to Residents of Manufactured Homes

Presented by:
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- Rachel Krogman - Homes Program Manager

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Mission

WECC champions and delivers innovative energy initiatives that produce enduring economic and environmental benefits for all.
Working Toward a Common Goal

Financial Savings: $85 million in energy costs
Total Energy Savings: 16 million therms of natural gas, 630 million kilowatt-hours of electricity

Equivalent to:
- Eliminate 1.1 billion pounds of CO₂
- Conserve 59.3 million gallons of gasoline
- Remove 110,296 cars from the roads
- Power 83,567 homes for one year
Who We Work With

ComEd, powering lives

Alliant Energy

Xcel Energy

Michigan Energy Options

WES Utility Services

MidAmerican Energy

Focus on energy

 Traverse City Light & Power

Investing Our Energy In You

SOUTHERN MINNESOTA MUNICIPAL POWER AGENCY

Black Hills Energy

GEMS

South Jersey Gas

Alger Delta Electric

Cloverland Electric Cooperative

Daggett Electric

City of Escanaba

Great Lakes Energy

Home Works

Tri-County Electric Cooperative

LP MEC

Village of Newberry

Ontonagon RE

PIE & G

City of South Haven

City of Stephenson, Michigan

WECC
Manufactured Homes Overview

**Definition:** Single-story, constructed in a factory, wood-frame bolted to steel chassis, designed to be transported.
Why Target Manufactured Homes?
Benefits

- Community Engagement
- Reduced Billing Arrears and Shutoff
- Workforce Development
- Demand Reduction
- Economic Development

Utility Benefits
Michigan Market Analysis

<table>
<thead>
<tr>
<th>Regions</th>
<th>Total MH Homes</th>
<th>% MH Homes</th>
<th>Avg Age</th>
<th>Median MH Value</th>
<th>Average owner income</th>
<th>Average renter income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Upper and Northern Lower Michigan</td>
<td>39,910</td>
<td>10%</td>
<td>1978</td>
<td>$43,450</td>
<td>$42,983</td>
<td>$23,586</td>
</tr>
<tr>
<td>Michiana Counties</td>
<td>13,088</td>
<td>8%</td>
<td>1972</td>
<td>$33,700</td>
<td>$50,010</td>
<td>$26,456</td>
</tr>
<tr>
<td>Southeast Lower Michigan</td>
<td>98,274</td>
<td>4%</td>
<td>1982</td>
<td>$28,300</td>
<td>$52,569</td>
<td>$32,829</td>
</tr>
<tr>
<td>Southwest Lower Michigan</td>
<td>87,713</td>
<td>7%</td>
<td>1979</td>
<td>$39,700</td>
<td>$48,059</td>
<td>$26,679</td>
</tr>
<tr>
<td>Upper Central and Western Michigan</td>
<td>10,163</td>
<td>7%</td>
<td>1968</td>
<td>$37,950</td>
<td>$48,328</td>
<td>$22,566</td>
</tr>
<tr>
<td>Statewide</td>
<td>249,148</td>
<td>5%</td>
<td>1980</td>
<td>$35,900</td>
<td>$49,729</td>
<td>$29,090</td>
</tr>
</tbody>
</table>

Source: US Census Bureau American Community Survey State and Local Areas
## Wisconsin Market Analysis

<table>
<thead>
<tr>
<th>Regions</th>
<th>Total MH Homes</th>
<th>% MH Homes</th>
<th>Avg Age All Homes</th>
<th>Median MH Value</th>
<th>Median Owner Income All Homes</th>
<th>Median Renter Income All Homes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Wisconsin</td>
<td>22,693</td>
<td>5%</td>
<td>1972</td>
<td>$24,500</td>
<td>$59,902</td>
<td>$28,886</td>
</tr>
<tr>
<td>Southeastern Wisconsin</td>
<td>9,725</td>
<td>1%</td>
<td>1973</td>
<td>$27,650</td>
<td>$69,183</td>
<td>$32,313</td>
</tr>
<tr>
<td>Northeastern Wisconsin</td>
<td>23,916</td>
<td>4%</td>
<td>1975</td>
<td>$25,600</td>
<td>$58,250</td>
<td>$29,829</td>
</tr>
<tr>
<td>Northern Wisconsin</td>
<td>16,355</td>
<td>6%</td>
<td>1974</td>
<td>$41,700</td>
<td>$50,420</td>
<td>$24,755</td>
</tr>
<tr>
<td>Western Wisconsin</td>
<td>23,305</td>
<td>6%</td>
<td>1975</td>
<td>$29,500</td>
<td>$58,085</td>
<td>$28,518</td>
</tr>
<tr>
<td>Statewide</td>
<td>95,799</td>
<td>4%</td>
<td>1974</td>
<td>$30,300</td>
<td>$58,197</td>
<td>$28,146</td>
</tr>
</tbody>
</table>

Source: US Census Bureau American Community Survey
Manufactured Homes Evolution

• 2015 Pilots
  – Direct install with duct and air sealing
  – IOU and rural cooperative/muni utilities
  – Served both electric and gas providers

• 2016 – 2017 Program
  – Production
  – Scalability
Direct Install Measures

- Interior lighting
- Low flow showerhead
- Kitchen aerator
- Bath aerator
- Water heater pipe wrap
- Duct sealing

- Belly insulation
- Exterior LED
- Water heater temperature adjustments
- ECM replacement
- Refrigerator replacement
- Air sealing
Marketing and Outreach
Low Income Customer Base

Annual Household Income

- Pilots
- 2016
- 2017 (through June)

Number of Customers

- <$10K
- $10K-$19K
- $20K-$29K
- $30K-$39K
- $40K-$49K
- $50K-$59K
- $60K+
- N/A

2016
2017 (through June)

2016
2017 (through June)
Head of Household Occupation

- **Retired**: 33%
- **Unemployed/disabled**: 4%
- **Contractor/manufacturer**: 6%
- **Service**: 7%
- **Manager/sales**: 20%
- **Self employed/student**: 21%
- **Healthcare**: 5%
- **Office/finances**: 3%
High Utility Bill Perceptions

Estimated Utility Bill Dollar Amount

Number of Customers

- $50-$99
- $100-$124
- $125-$149
- $150-$199
- $200+
- N/A

Pilots  2016  2017 (through June)
Water Heating

Michigan

Michigan Pilot

RECS 2009, MI

Wisconsin

Wisconsin Pilot

RECS 2013, WI

- Natural Gas
- Electric
- Propane
- Other
Contractor Training

Award-winning Services
Below are building performance-related awards WECC has recently been honored to receive:

- 2013 Energy Center of Wisconsin Educator of the Year Award (Robert Parkhurst)
- 2012 ENERGY STAR for Homes Leadership in Housing Award
- 2011 ENERGY STAR Sustained Excellence Award
- 2011 ENERGY STAR for Homes Leadership in Housing Award
- 2011 Energy Center of Wisconsin Educator of the Year Award (Bob Pfeiffer)
- 2011 U.S. Department of Energy National Weatherization Recognition Award
- 2009 U.S. Department of Energy National Weatherization Recognition Award

WECC has trained more than 5,000 energy professionals over the past five years.
Robust In-Field Testing
Robust In-Field Testing
Pre-Work Images
Field Operations Assistant
Post-work Images
Post-work Images
Overall Program Satisfaction

**Question:** Overall, how satisfied are you with the Manufactured Homes Program services?

- **2016:** 83% of responses rated the services as a 10.
- **2017:** 69% of responses rated the services as a 10.

The chart shows the distribution of customer service ratings for 2016 and 2017.
Satisfaction: Recommend to Others

**Question:** How likely are you to recommend the Manufactured Homes Program to others?

85% of respondents are extremely likely to recommend the program (2017)

80% of respondents are extremely likely to recommend the program (2016)
2015 Pilot Customer Feedback

- “My furnace doesn’t run so much, and the heat seems to be more evenly spread out.”
- “I keep the heat set at 68 degrees and the house feels warmer.”
- “Instant relief from the dust and cold.”
- “Much warmer with the heat turned down.”
- “The new showerheads they put in are nice.”
- “Bills went down!”

94% Satisfied or Very Satisfied with the pilots!
2016 Program Responses on Satisfaction

“It was wonderful! I appreciate all the leaks and repairs that were fixed for free. It’s so nice to be warm again. Before there was always draft & dampness.”

“They were fast and efficient, did great work”

“This was very helpful and THANK YOU MUCH. :)

“More than I ever thought it would be. Needed fridge, checking prices. Awesome :)”

“They were friendly and we appreciate the new lights and shower heads and the energy savings we will experience.”

“Just keep doing what your doing with your program, its greatly appreciated”

“They were fast and efficient, did great work”
Sept 29, 2016

Hello my Name is Bernice Kleigler
God Bless You People I had to come home to my home around 8:30 from Freemont Mead
Thank you and thank them for what they did for me for me. Please tell the Young Man I just loved him. God Bless you Young Man. I made my Day, I had my health.

I was happy to be home with me for the day. You made him and me to go on and I'll be home with him soon. David is doing and happy for God should me. David is doing and happy for God should me. David is doing and happy for God should me.

Thank you Son, We need one man like you. You are one good man to always remember you are loved. Keep up the Good Work. As for me please give them all for me and tell them. Thank you again for me.

Troy, Jake, God Bless You All

Bernice Kleigler
3162 W. Monroe Rd.
Manistee MI 49452

Please because they can read this letter. Think you.
2017 Program Responses on Satisfaction

“This program is an answer to prayer! Thank you for this service. The person who came out was very informative and respectful and efficient. She was someone who knew her job and did it well.”

“I can't thank you enough for this wonderful service! I love the new showerhead, aerators, and bulbs. I really am glad for this service!”

“They did everything allowed for the program, and I know that's going to help with my electric bill.”

“Everything that was performed was explained professionally & precise. Extremely happy with all of the installations & tests performed. Your employee was very kind, polite and professional.”

“I think this is a wonderful program, especially for people like me with low income.”
## Results

<table>
<thead>
<tr>
<th></th>
<th>Michigan Pilot</th>
<th>Wisconsin Pilot</th>
<th>Michigan Program (2016-June 2017)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>63</td>
<td>79</td>
<td>364</td>
</tr>
<tr>
<td>No Duct Sealing</td>
<td>5</td>
<td>2</td>
<td>110</td>
</tr>
<tr>
<td>Avg. kWh/home</td>
<td>664 kWh</td>
<td>503 kWh</td>
<td>1,212 kWh</td>
</tr>
<tr>
<td>Avg. therms/home</td>
<td>152 therms</td>
<td>21 therms</td>
<td>67 therms</td>
</tr>
</tbody>
</table>
Michigan Production Program

- Lesson's learned/items adopted into program design:
  - Truly underserved market and great need
  - No income eligibility requirements
  - No cost to customer
  - Air sealing and duct sealing to reduce overall heating and cooling fuel consumption
  - The leakiness of ducts in these homes carries a huge potential for cost-effective energy savings
Current Manufactured Homes Program Approach

Customer-Focused Program

Direct Install With Duct and Air Sealing

Trade Ally Training and Development
Future MH Program Approach

Customer-Focused Program

- Direct Install With Duct and Air Sealing
- Trade Ally Training and Development
- Whole House Retrofit and Financing
- Replacement and Financing

Retail/Wholesaler Program

- Distributor Refurbishment
Program Design

• Customize program design to meet client/utility needs
• Target older homes and high energy users
• Electric & Gas partnership for full savings potential
• Contractor training & QA/QC very valuable
• Streamlined customer process
• Potential financing integration next phase
Manufactured Homes by State

(Census 2011)

Source: Moody’s Economy.com
Questions?

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