Beneficial Electrification League

Weatherization and Electrification

WE Together!
## BEL’s Mission and Vision

<table>
<thead>
<tr>
<th>Vision</th>
<th>Mission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our vision of the future is for beneficial electrification to be</td>
<td>To increase understanding on the benefits of electrification by</td>
</tr>
<tr>
<td>universally accepted as a necessary strategy to meet economic,</td>
<td>promoting the market acceptance of beneficial electrification, educate</td>
</tr>
<tr>
<td>consumer and environmental goals.</td>
<td>policy makers on the value, benefits and tools of Beneficial Electrification</td>
</tr>
</tbody>
</table>
What is “Beneficial Electrification?”

Beneficial Electrification (BE) includes the application of electricity to end-uses where doing so satisfies at least one of the following conditions, without adversely affecting the others:

– Saves consumers money over time;
– Benefits the environment and reduces greenhouse gas emissions;
– Improves product quality or consumer quality of life;
– Fosters a more robust and resilient grid

Beneficial Electrification programs are a valuable opportunity to engage both electric utilities and environmental groups in the effort to identify solutions that work well for the end-use consumer, local communities and the environment.

*NOT an “Electrify Everything” Concept*

*Follow The Beneficial Electrification League on LinkedIn*
Why Weatherize and Electrify Together?

• Electrification without Weatherization = potential comfort issues and oversizing

• Weatherization without electrification = missed opportunity for assessment and BE/EE opportunities

• W/E Together = Reduced peak load (counterintuitive), increased comfort and multiple benefits
What is business model when changing fuel sources from gasoline, diesel, fuel oil, gas to electricity (including panel and wiring and new appliances)?

• Money from the federal government will change this equation
Both programs are newly created and have over $4B each set aside to flow to states for implementation.

- Home Owner Managing Energy Savings (HOMES) Rebate Program allows for HP upgrades with a rebate of $4,000 ($8,000 for LMI homeowners).

- High-Efficiency Electric Homes Rebate Program is an income-qualified program with a cap of $14,000 per home and $8,000 for HP systems.
Point-of-sale rebates up to $14,000 for LMI households

• $8,000 for heat pumps
• $1,750 for heat pump water heaters
• $840 for heat pump clothes dryers
• $840 for electric or induction stoves
• $4,000 for electrical panel upgrades
• $2,500 for rewiring
• $1,600 for basic weatherization
• This program is income tested at 150% AMI.
• 50% of costs up to rebate caps for households at 80%-150% AMI
• 100% costs up to caps for households at <80% AMI
Looking to Enhance Collaboration

W/E Together Advisory Board
Role of the not-for-profit utility

• Level of Engagement
  • Formal Program
  • Project Management/Coordination
  • Consumer Education & Referral

• Common Challenges
  • Manufactured housing that is old
  • Availability of contractors
  • Customers can be difficult to reach
  • Homeowner education is an important factor

• Partnerships
  • CAP Agencies
Anza Electric Co-op

- Founded in 1955
- 26 employees
- 5,200 meters (94% residential and 6% small commercial)
- 550 square miles of service territory area in Riverside County
- Serves three tribal communities
- Single transmission line, vulnerable to fire related shutoffs
- 70% of homes are manufactured homes
From Leaky “Mummy” WH to High Performance

Leak and Corrosion
From Dangerous Rats Nest to Clean Electric
Heating and Cooling
Healthier Cooking
Impacts at Anza Electric Co-op

• Projections for load, costs, savings, rate of return

• Looking Forward:
  • Co-op as Project Manager
  • Lessons Learned
    • How Anza EC is applying them to House #2
  • Member Engagement/Relationship
    • Educating the family on usage patterns
    • Intersection with high bill complaints

• Workforce Development: Training and Expansion of Staff Knowledge
  • Project Management
  • Technologies, including monitoring post installation
  • Contracting and contractor training
  • Blower Door Testing
Flint Electric Membership Co-op

• Celebrating 85 years
• Covers 17 counties in central Georgia and the Museum of Aviation at the Robins Air Force Base and the Fort Benning Military post
• 91,496 meters (64% residential, 33% commercial & industrial and 3% other)
• 240 employees
On the Ground in GA
## Water Heater Questions

<table>
<thead>
<tr>
<th>Option 1: Leave existing water heater</th>
<th>Option 2: Replace with heat pump water heater</th>
<th>Option 3: Replace with 1-2 tankless systems</th>
<th>Option 4: Replace with Grid Flexible WH</th>
</tr>
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<tbody>
<tr>
<td><strong>Pros:</strong> Least expensive. Not replacing a functioning system.</td>
<td><strong>Pros:</strong> All electric home. New WH.</td>
<td><strong>Pros:</strong> All electric home. Systems are relatively inexpensive.</td>
<td><strong>Pros:</strong> All electric home. New WH. Can integrate with utility’s demand response program.</td>
</tr>
<tr>
<td><strong>Cons:</strong> No elimination of propane/propane bill. Combustion risk post air sealing.</td>
<td><strong>Cons:</strong> Closet size limits options. Door frame must be removed for installation. Closet door should be replaced (slatted door for air flow).</td>
<td><strong>Cons:</strong> Power draw requires heavy up</td>
<td><strong>Cons:</strong> Less kWh reduction than heat pump option.</td>
</tr>
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</table>

**Consideration:** Heavy up may open up HVAC options
Minnesota Valley Electric Cooperative

MVEC

• Headquartered in Jordan, MN
• 900 sq miles
• 45,000 members
• 100 employees
• Diversified Power Supply
• Long standing energy wise & load management programs
Deep Retrofit and Electrification Pilot

- MVEC with the MN Center for Energy & Environment (CEE)
- Desired Outcome:
  - Support Low Income members pathway to electrification & lower energy burden
- Approach:
  - Pilot targeted & deep retrofits – including electrification measures
  - Large impact to concentrated group, contrasting current light impact on large pool
  - “pre-weatherization” measures eligible under MN ECO Act
- Methodology
  - MVEC sent CEE data for 30 Accounts with: Low Income/Cold Weather Rule designation, and usage indicating electric as likely primary heating source
  - MVEC funds project
  - CEE to examine data, contact members, audit, determine need/opportunity, take action
  - Evaluate scalability & cost-effectiveness to move from Pilot -> Program
### House #1 W/E Upgrades

<table>
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<th>Charges</th>
<th>AEC Rebate</th>
<th>Totals</th>
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<td>3 Mini-Split Systems</td>
<td>11,400</td>
<td>(2,000)</td>
<td>9,400</td>
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<td>Upgrade electric panel, breakers</td>
<td>4,275</td>
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<td>Weatherization, air sealing, LEDs</td>
<td>2,390</td>
<td>(500)</td>
<td>1,890</td>
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<tr>
<td>Induction stove</td>
<td>1,227</td>
<td>(250)</td>
<td>977</td>
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<tr>
<td>Electric Water Heater (donated by AEC)</td>
<td>1,455</td>
<td>(1,455)</td>
<td>-</td>
</tr>
<tr>
<td>Install electric water heater</td>
<td>1,080</td>
<td></td>
<td>1,080</td>
</tr>
<tr>
<td><strong>House #1 Total</strong></td>
<td>$21,826</td>
<td>$(4,205)</td>
<td>$17,622</td>
</tr>
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Note: AEC also spent about $20K, including ramp up for house #1.

### Theoretical House leveraging IRA

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**Note:** Maximum HEEHR/house is $14,000.
• Questions/comments/recommendations for Anza, Flint and/or Minnesota Valley

• Looking forward to federal incentives for home energy upgrades. What do we know now? What can we do to prepare?

• What other weatherization and electrification efforts should we be learning from?
Next Steps

• Launch of the W/E Together Utility Group
  • https://gaggle.email/join/wetogether@be-league.org

• Potential Topics for Upcoming W/E Together Forums
  • Engaging low-income consumers/members
  • Homeowner education
  • Workforce development
  • Smart panels
  • WE Together’s water heater research
  • Other topics of interest?