Energy Efficiency: Targeting the Low Hanging Fruit

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PROVIDING EFFECTIVE ENERGY EDUCATION AND ENCOURAGING BEHAVIOR CHANGE

Identifying and removing barriers to change

• Develop effective educational materials, resources, and approach
• Secure community commitment
• Provide individualized encouragement and identify incentives to maintaining change
KEYS TO EFFECTIVE EDUCATION

• Message delivered by local people
• Message delivered multiple times in different formats
• Information is accessible, personalized, friendly
• Educational materials are customized for region, easy to relate to
• Supplies and materials provided
COMMUNITY ENGAGEMENT

• Community invites program to village
• Community contributes resources to project (buy-in)
• Community has ownership over aspects of the project
• Local leaders are involved with project design
• All ages are engaged and as many community groups involved as possible
INDIVIDUAL ENCOURAGEMENT

• Individuals make a commitment, contribute resources
• Materials are accessible, provided in a friendly format
• Information is personalized and direct
• Obstacles are addressed, questions are answered
• Follow-up is available locally, feedback is solicited and used
GOALS

• Reduce residential energy consumption
  – Behavior change
  – Low-cost home upgrades

• Create local jobs
  – Provide immediate employment
  – Prepare crews for future jobs
EFFECTIVE ENERGY EDUCATION

• Message Delivered by Local Crews

• Energy Fair
  – Engages entire community
  – Residents sign-up for home assessment

• In-Depth, Home Energy Use Assessments
  – 8 hour home visit by crews
  – Residents participate in finding where energy is used and how to save
  – $300 of energy efficiency supplies installed

• Follow-Up Education and Survey
  – 3 to 6 months after home assessment
ENERGY WISE CREWS

- Crew leaders selected and trained in advance
- Crew members selected and trained on site
- Trained for immediate employment and future careers
Energy Wise Crews - Preparing for Future Employment:
- Energy Development
- Weatherization
- Construction Fields

All crews receive training and certification in:

- **Weatherization Tech 1**
  - General building science
  - Weatherization basics
  - Hands-on installation experience

- **Occupational Safety and Health Administration (OSHA) 10**
  - Construction safety standards

- **First Aid**
COMMUNITY ENGAGEMENT

• Community applies to host Energy Wise
• Community provides a lead contact, office space, storage, other in-kind contributions
• Community has ownership over energy fair, timeline, crew selection, and project promotion
• Local leaders are involved with project set-up, crew selection
• All ages are engaged and as many community groups involved as possible
COMMUNITY INVOLVEMENT

- Tribal Council
- City Council
- School
- Church Groups
- AmeriCorps/VISTA
- Youth Groups
- Parks and Recreation
- Other Energy Projects
Local Recruitment of Crew
Energy Fair Participants
Energy Presentations
Involving Youth
ENCOURAGING RESIDENTS

• Residents sign-up for an appointment at the Energy Fair
• Residents spend the day with the crew during the home visit and learn about supply installation and maintenance
• Residents receive one-on-one education about energy use, bills, and resources from crew
• An individual household savings plan is developed, hot-spots identified
$300 in Supplies for Home Upgrades

- Window insulation film
- Compact fluorescent lights
- Silicone and foam spray
- Weather stripping
- Jamb-up door kit and door sweep
- Foam tape and mounting tape
- Pipe insulation
- Faucet aerators, soap-up valve and low-flow shower heads
- Power strips with surge protectors
- Hygrometers
- Refrigerator thermometer and coil cleaners
- Outlet and light switch insulators, plug protectors
- Water heater blanket
- Fire alarm, extinguisher, and carbon monoxide detector
Crew getting tools
Hands-on Training – Kill-a-Watt Meter
Crews Learn How to Read Energy Bills, Calculate Costs
Crew Leaders Teach Crews and Practice Installation
Home Visits Begin
Crews Show Residents How to Save Energy and Money
Crews Review Energy Bills with Residents
Crews Test Appliances with Kill-a-Watt Meters
Replacing Incandescent Lights with CFL Bulbs
Sealing Leaks - Installing Door Sweeps and Door Jams
Applying Window Film
Testing Appliances and Cleaning Refrigerator Coils
Testing, Cleaning, and Teaching Freezer Maintenance
Insulating Light Switches and Electrical Outlets
Water Heater Blankets and Efficiency Training
Installing ‘Soap Up’ Valve to Save Hot Water
Mounting Carbon Monoxide Detector, Fire Extinguisher
Residents Receive Follow-up Visit
2010 ENERGY WISE RESULTS

• 160 rural Alaskans trained and employed
• 90% retention of crews
• 2,000 homes served
• 7,500 educated
• $$$ energy and money saved
FEEDBACK FROM RESIDENTS

• Reported reduction in electric bills by $20-30/month, with many residents reporting bills dropping by half or more.

• Residents reporting that they were warmer the night after the visit, less wind and snow blowing through cracks in windows and doors.

• Reported that energy consumption behavior practices changed with education.
2010 OUTCOMES – SUSTAINED CHANGE

Over 700 out of 1000 households completed follow-up surveys within 3-6 months of the home education visit:

- 86% reported they were still practicing energy efficiency and conservation measures
- 80% reported decreased electric bills
- 82% reported decreased home heating costs
ELECTRICAL COSTS

Before Energy Wise

After Energy Wise

PCE costs

Residential Costs
AVERAGE MONTHLY ELECTRIC BILLS

Before Energy Wise:
• $186 = 287 kWh/month
  – $63 is paid by resident ($0.218)
  – $123 is covered by PCE ($0.427)

After Energy Wise:
➢ 90 kWh/month reduction
➢ minimum $59 reduction in electricity costs
• $127 = 195 kWh/month
  – $43 paid by resident ($20 savings)
  – $84 is covered by PCE ($39 savings)
PROJECT PAYBACK

• Residents save:
  – $50/month in heating & electricity = $600/year

• State saves - PCE reduction:
  – $39/month = $468/year

• Project cost is just under $2,000/home:
  – Annual savings = $1068/year

• Project payback in savings = less than 2 years
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