

**Projects that Reduce Residential  
Wood Smoke Emissions**

**Description:**

Title	Project Stove Swap – Powerful Project Partnerships
Location (City, Counties, Region)	Northeast Minnesota – 17 counties in the northeast region of Minnesota
Population/Number of homes covered by project	<ul style="list-style-type: none"> <li>• 322 individual homes were assisted with stove swap-outs</li> <li>• Entire Northeast Minnesota region benefited from improved air quality and media engagement/outreach efforts</li> </ul>
Objectives (NAAQS attainment/maintenance, indoor air, visibility, air toxics, public education)	<p>Between 2016-2020, Project Stove Swap (PSS) operated in a 17-county area in Minnesota’s Northeastern Arrowhead region. PPS’s approach balances economic development, public health benefits, and strong environmental outcomes to leverage respective strengths and accomplish beneficial outcomes greater than an individual entity could achieve. PSS was originally designed around a supplemental environmental project, but was redesigned to leverage additional resources, add partners, and gain greater environmental, health, and economic benefits. Public education and engagement elements were included in the project redesign.</p> <p>PPS worked with the <i>North Central Hearth, Patio and Barbecue Association</i> to connect with vendor partners throughout the region to ensure eligible technologies were available within the 17-county service area. Working with shops and local associations, PSS vendors became the greatest advocates for the effort. Each vendor’s project knowledge, engagement, and standing in their community became a valuable asset for recruitment and meeting participant needs.</p>
Milestones (Project time frame, number of changeouts, air quality goals, number of low-income homes targeted if applicable)	<ul style="list-style-type: none"> <li>• Prioritized at-risk populations (the elderly, Tribal members, and income-qualified participants) and obtained additional funding to provide the greatest possible incentives—sometimes covering the entire project cost – for these most sensitive families.</li> <li>• Leveraged additional project resources and funding to develop otherwise unrealized partnerships with private foundations, companies, and local, state, and federal governmental entities</li> <li>• Provided an educational element on the vital importance of burning dry wood with vendor and participant training, instructional material, and moisture meters.</li> <li>• Demonstrated the power of aligning public, private, and community interests—each with differing motivations—to reach</li> </ul>

<p>Title</p>	<p>Project Stove Swap – Powerful Project Partnerships</p> <p>mutually beneficial outcomes. With an overall goal of serving the entire state, Project Stove Swap’s work will shift to the Twin Cities metropolitan area. We believe this model is transferable outside of the original service area and will allow Clean Air Minnesota to continue to work on emissions reductions through stove change-outs.</p>								
<p>Budget (projected/actual cost )</p>	<table border="0"> <tr> <td>Project Stove Swap and additional leveraged funding</td> <td style="text-align: right;">\$766,499</td> </tr> <tr> <td>Vendor/Manufacturer Discounts</td> <td style="text-align: right;">\$53,933</td> </tr> <tr> <td>Customer Contributions</td> <td style="text-align: right;">\$1,129,352</td> </tr> <tr> <td><b>Total</b></td> <td style="text-align: right;"><b>\$1,949,784</b></td> </tr> </table>	Project Stove Swap and additional leveraged funding	\$766,499	Vendor/Manufacturer Discounts	\$53,933	Customer Contributions	\$1,129,352	<b>Total</b>	<b>\$1,949,784</b>
Project Stove Swap and additional leveraged funding	\$766,499								
Vendor/Manufacturer Discounts	\$53,933								
Customer Contributions	\$1,129,352								
<b>Total</b>	<b>\$1,949,784</b>								
<p>Funding Sources (government funds, grants, Supplemental Environmental Project, fees, etc.)</p>	<ul style="list-style-type: none"> <li>• Minnesota Power Supplemental Environmental Project</li> <li>• Flint Hills Resources project support</li> <li>• Northland Foundation</li> <li>• Duluth Superior Area Foundation</li> <li>• EPA Tribal Change-out grant</li> <li>• Fond du Lac Band of Lake Superior Chippewa Energy Assistance</li> <li>• Vendor and Manufacturer Discounts</li> </ul>								
<p>Partners (government/private organizations involved)</p>	<p>Minnesota Power          Flint Hills Resources          U.S. Environmental Protection Agency          Northland Foundation          Duluth Superior Area Foundation          North Central Hearth, Patio, &amp; Barbecue Association          Minnesota Pollution Control Agency          All in One Outdoor Wood Furnace          Bougalis Construction          Wilkening Fireplace          Duluth Stove and Fireplace          Fireplace Lifestyles          Energy Plus, Inc.          MMT Heating and Cooling          Greentech Manufacturing, Inc.          Fire Works Fireplace Installation          Shannon’s, Inc.          Fireplace Corner          Hearthsides Corner          SCR, Inc.          Leech Lake Band of Ojibwe          Fond du Lac Band of Lake Superior Chippewa          Holland &amp; Hearth</p>								

Title	Project Stove Swap – Powerful Project Partnerships
	Bernard Dalsin Manufacturing Hearth & Home Technologies, Inc. Central Boiler, Inc.
Incentives Offered (rebates, discounts, vouchers, incentives for low income homes, etc.)	<p>The consent decree defined the general incentive amounts for the various types of swap-out technologies. The cleaner the technology and the greater the emission reductions, the larger the incentive. Our effort focused on maximizing work with income-eligible customers, especially Tribal members. The incentive levels for <b>income-qualified change-outs</b> often posed barriers for customers who most needed assistance. Generally, change-out costs ranged from an average of \$4,480 for wood stoves to \$11,100 for hydronic heaters, while the income-qualified incentives ranged from \$3,000 for wood stoves to \$10,000 for outdoor hydronic heaters. The maximum incentives set by the consent decree often fell \$1,500 to \$2,000 short of the full cost to change out an appliance. In addition, many of the income-qualified change-outs required more extensive re-model or replacement of chimney venting, hearth pads, or whole-home heating systems, which further increased costs. To receive income-qualified incentives, residents had to qualify for any one of a variety of federal or state assistance programs, with income cut-offs typically between \$20,000 and \$24,000. For the residents most needing change-outs, paying the un-funded share of \$1,500-\$3,000 was not financially feasible.</p> <p>Income-qualified change-outs did not move forward early in the program without additional external sources of funding to pay the balance of the project’s costs. This introduced significant challenges for potential partners, existing vendors, Environmental Initiative, and most importantly, customers themselves.</p> <p>For vendors visiting prospective Project Stove Swap customers who ultimately couldn’t afford change-out costs, the visits took up staffing resources that would not necessarily lead to new projects and became a strain on their businesses. In addition, many of the homes which vendors visited had wood appliances that were dangerous due to cracked chimneys, inadequate clearance to combustibles, or poorly designed venting. Vendors expressed both ethical and liability-related concerns about leaving those appliances in place and not condemning the homes. But the appliances were often a sole source of heat for a home. Having visited and inspected these dangerous installations, but not having made any significant changes, vendors could be liable if there were subsequent injuries or property damage. Rather than abandon or diminish the income-eligible work, Environmental Initiative sought additional funding to alleviate these problems and continue this much needed work.</p>

Title	Project Stove Swap – Powerful Project Partnerships
Ordinances/Regulations (mandates for cleaner-burning hearth devices)	Not applicable
Project Yardstick (number of woodsheds constructed, number of stoves replaced with new stoves or other technology, etc.)	<ul style="list-style-type: none"> <li>• Partnered with 13 local, small businesses</li> <li>• Invested \$1.9 million in local economies</li> <li>• Cut heating costs for more than 30 income-qualified households</li> <li>• Swapped 322 appliances</li> <li>• Removed the air emissions equivalent to more than 985,000 cars from the road</li> </ul>
Outreach/Marketing (radio/TV public service announcements, workshops, woodstoves expo, flyers, mailouts, social media)	<p>Project material can be found at the following link:  <a href="https://environmental-initiative.org/work/project-stove-swap/">https://environmental-initiative.org/work/project-stove-swap/</a></p> <p>PSS used earned media as a primary mechanism to build and maintain general participant interest in the work. This consisted of an initial press conference on January 31, 2017, announcing the project’s launch, followed by a press release during the 2018 heating season. PSS also worked with many vendors to do their own advertising and earned media work, yielding at least two of the feature articles listed below. A full summary of the project’s earned media is included below. This was an incredibly effective strategy, yielding 10 feature stories about the project in local and regional outlets, detailed below. In fact, 61 (20%) applicants named one of these articles as the way they learned about the effort.</p>
Air Quality Data/Other Results (current project area’s air quality status and is improving indoor air quality part of project)	<p>Total emission reductions from the 322 wood-burning appliance replacements were 56.084 tons of particulate matter, 30.054 tons of volatile organic compounds (VOCs), and more than 222 tons of carbon monoxide. In addition, improved burn rate efficiencies eliminated more than 1,100 tons of wood from being burned.</p>
Lessons Learned (What worked? What didn’t? Tips? How can project be improved?)	<p><b>Greater incentives for income-eligible customers</b></p> <p>The original project was leveraged to gain additional resources. We worked with the EPA, Minnesota Pollution Control Agency, Minnesota Tribes, and corporate partners and foundations to raise the funds and adjust the project accordingly.</p> <p>The EPA allowed us to add assistance programs to include more income-eligible customers. The EPA also allowed customers to show that they were eligible for the assistance projects as opposed to participating in the projects – this was a point of principle for some customers.</p> <p>Original qualification programs included: Supplemental Nutrition Assistance Program; Medical Assistance; Women, Infants, and</p>

<p>Title</p>	<p>Project Stove Swap – Powerful Project Partnerships</p>
	<p>Children’s Program; and Low-Income Heating/Weatherization Assistance Program. The EPA agreed to also allow: Social Security Disability Insurance; Free and Reduced Lunch, Head Start, and MinnesotaCare. This expansion was especially helpful to perform and expand the work with Tribal members.</p> <p>Rather than focusing on getting money out the door as fast as possible, we chose to focus on the customers’ stories and emphasize vendor project relationships. This important shift allowed us to raise additional funding and complete more income-eligible projects while maintaining the overall efficacy of the project.</p>
<p>Project Contact (name, organization, phone number, email address, web link to project)</p>	<p>Alli Mueller, Project Manager, Environmental Initiative <a href="mailto:amueller@en-in.org">amueller@en-in.org</a> 715-892-6956 cell</p> <p>Bill Droessler, Program Development Officer, Environmental Initiative <a href="mailto:bdroessler@en-in.org">bdroessler@en-in.org</a> 651-253-3908 cell</p> <p>Environmental Initiative Project Stove Swap <a href="https://environmental-initiative.org/work/project-stove-swap/">https://environmental-initiative.org/work/project-stove-swap/</a></p>