

Projects that Reduce Residential Wood Smoke Emissions

Description: Tulalip Tribes Ductless Heat Pump & Healthy Homes Education Project

A ductless heat pump is a device that utilizes similar technology to a refrigerator and air conditioner. “A heat pump is a device that transfers heat energy from a source of heat to what is called a thermal reservoir. Heat pumps move thermal energy in the opposite direction of spontaneous heat transfer, by absorbing heat from a cold space and releasing it to a warmer one.” It provides heating, cooling and dehumidification to a room or house, depending upon the size of the system. There are heat pumps that have an air handler (looks are like an oil or electric furnace) and some that have a supply ‘heads’ (ductless mini-splits). Both units utilize compressors that are located on the outside of buildings. It uses electricity and is highly efficient. Heat pumps use far less electricity (less cost) to run than a space heater and without any of the potential fire hazards of space heaters. Limitations – failure to perform in a power outage.

Title	Tulalip Tribes Ductless Heat Pump & Healthy Homes Education Project
Location	Tulalip Tribes, Washington State
Population/Number of homes covered by project	<ul style="list-style-type: none"> • 18 eligible households on the Tulalip Reservation • Priority: Tulalip Tribal elders who use wood heat and have asthma or COPD. • Background: Majority of the newer homes that are owned and managed by the Tulalip Tribes are heated with electric baseboard or Cadet wall heaters. The inefficiency of these units results in high utility bills for tenants, who may have a fixed income. To lower their utility bills, residents frequently turn off the heat in the bedrooms, which creates temperature differentials, condensation on windows and contributes to mold growth. Residents use wood heat as an affordable heating alternative, but research also indicates that wood heat is a source of comfort, familiarity, and autonomy. Wood heat, however, is associated with indoor and ambient exposure to fine particulate matter and combustion gases.
Objectives	<ol style="list-style-type: none"> 1. Improve energy efficiency, save money, and improve indoor air quality in Tulalip homes that primarily use wood and/or electric heat. 2. Purchase and install Single-Zone Ductless mini-split Heat Pumps with built-in air filtration systems that do not require replacement filters in 18 income-qualified rental homes. 3. Criteria: At least one member of a federally recognized tribe lives in the home, home is heated with electric baseboard or electric-sourced heat; and at least one resident has a respiratory or health condition that would be improved by a cleaner form of home heating. 4. Provide home assessments and Healthy Home Toolkits for up to 18 homes.
Milestones	<ul style="list-style-type: none"> • 18 households received ductless heat pumps (note: woodstoves were not removed – in case of power outage a backup source of heat is desirable and, in most cases, necessary)

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	<ul style="list-style-type: none"> • 18 homes received assessments and healthy homes toolkits which contain 11 different tools that promote home health and safety by educating and engaging residents. • 2-year project period (2016-2017)
Budget	<p>\$185,790</p> <ul style="list-style-type: none"> • BPA Tribal Energy Program Grant \$77,295 • Direct Tribal Dollars: Tulalip Board of Directors provided direct cash match of \$77,295 • Tulalip Elders Housing Improvement Program: Provided up to \$30,000 of in-kind in labor • EPA 103 Grant: \$1,200 for air quality staff to provide resident education • Heat Pumps: \$3,800 per appliance, installation costs of \$3,000 each • Healthy Homes Kits: \$125/each
Funding Sources	<ul style="list-style-type: none"> • Bonneville Power Administration Tribal Energy Grant Program • Tulalip Tribes • EPA Tribal Clean Air Act 103 Grant Program (Region 10)
Partners	<ul style="list-style-type: none"> • Tulalip Health and Safety Program • Tulalip Housing Program + Elders Housing Improvement Program • Tulalip Air and Indoor Environments Program • Tulalip Grants Department Staff • Tulalip Tribal Health Clinic • EPA Region 10 • Bonneville Power Administration
Incentives Offered	<ul style="list-style-type: none"> • New ductless heat pumps and installation • Healthy Homes Toolkits • Home assessments
Ordinances/Regulations	N/A
Project Yardstick	<ul style="list-style-type: none"> • Number of households receiving ductless heat pumps • Number of homes receiving healthy homes toolkits • 2-year project period (2016-2017)
Outreach/Marketing	<ul style="list-style-type: none"> • Referrals from Tulalip Housing, Tulalip Elders' Program, and Tulalip Health Clinic
Air Quality Data/Other Results	<ul style="list-style-type: none"> • Funds successfully braided together. • Many departments collaborated and each had a defined role • Tribal Air Quality Program staff found funding source and wrote proposal. • Tribal grants department finalized and submitted proposal. • Tribal Housing Department reviewed scope and advised on implementation. • Tribal Air Quality staff assembled and provided Air Matters toolkits and provided resident education to each household. • Elders Housing Improvement Program handled all purchasing and provided all in-kind for installation.

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	<ul style="list-style-type: none"> • Tribal Health and Safety Program served as champion, liaison to the Tribal Board, and helped recruit households. • Happy elders – heat pump recipients reported being happy with the new appliances and toolkits.
Lessons Learned	<ul style="list-style-type: none"> • Interdepartmental collaboration with designated roles and responsibilities was critical to success. • Braiding multiple funding sources was necessary and successful. • Prioritization of elders and individuals with respiratory illness was valuable when having to make decisions about distributing a limited number of resources. • Having a champion within the Tribe was valuable. • Healthy homes toolkits were well received by residents and good conversation starters. • Sharing other tribes’ successes (e.g. this video) was valuable for Board decision making/approval
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