

# **Portola Wood Stove Change-Out 2020 Progress Report**

***Wood Stove Change-Outs Completed  
Through 12/31/2020***



March 17, 2021

Air Quality Planning Branch  
Air Quality Planning and Science Division

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## Executive Summary

The Northern Sierra Air Quality Management District (District) developed the Portola Fine Particulate Matter (PM<sub>2.5</sub>) Attainment Plan (Plan) to demonstrate attainment of the 12 ug/m<sup>3</sup> annual PM<sub>2.5</sub> standard by 2021. The core element of the attainment strategy is implementing the Greater Portola Wood Stove Change-out Program (Program) in Plumas County funded by the U.S. Environmental Protection Agency (U.S. EPA) 2015 Targeted Air Shed Grant Program. The goal of the Program is to replace 600 old, uncertified wood stoves with cleaner burning and more energy efficient home heating devices. The change-outs were scheduled to take place between 2016 and 2020, with an estimated 100 to 150 change-outs per year. The District is offering incentives, up to the full cost of purchase and installation, to qualified residents of the Plumas County PM<sub>2.5</sub> Nonattainment Area (Nonattainment Area) using uncertified wood stoves or inserts as a primary source of heat.

The District and California Air Resources Board (CARB) developed an enforceable measure to allow U.S. EPA to credit the incentive emission reductions towards the attainment demonstration. According to U.S. EPA guidelines, emission reductions achieved from the implementation of an incentive program can be credited towards an attainment demonstration if they meet the following integrity elements: enforceable, quantifiable, surplus, and permanent.<sup>1</sup> The reductions achieved due to change-outs completed between 2016 and 2020 meet all of these integrity elements.

As part of the enforceable measure, CARB must submit an annual report that includes the elements listed below. This progress report demonstrates that the Program met each of these requirements as outlined below:

- Identify each project implemented during the previous calendar year by Program tracking number, description of both baseline and new equipment, and quantified emission reductions (Appendix A);
- Provide an internet link to the EPA Burnwise Emission Calculator used to calculate emission reductions (Alternative Calculator was used as explained in Chapter II);
- Describe the actions taken and documentation collected by CARB to confirm each project's compliance with Program requirements (Chapter IV);
- Determine whether the quantified annual PM<sub>2.5</sub> emission reductions are projected to achieve the full amount of enforceable commitment of 0.045 tons per day (tpd) by December 31, 2019 and 0.077 tpd by December 31, 2021 (Table 2 and Figure 3); and
- Describe any changes to relevant forms and related impacts on Program integrity (Chapter VI).

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<sup>1</sup> See "Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)," October 24, 1997, at page 6-7; "Improving Air Quality with Economic Incentive Programs," January 2001 at Section 4.1; "Incorporating Emerging and Voluntary Measures in a State Implementation Plan (SIP)," September 2004 at pages 3-4' and "Diesel Retrofits: Quantifying and Using Their Emission Benefits in SIPs and Conformity," February 2014 at pages 27-29.

In addition to the annual report, CARB committed to perform a retrospective assessment which would evaluate the overall performance of the Program and develop recommendations for future enhancements to Program implementation. This assessment, included in every third annual report, shall include the following:

- Comparison of projected rate of wood stove change-outs (units/year, as described in plan submission) with actual rate of change-outs;
- Comparison of projected numbers of change-outs by type (e.g., wood to pellet stove, or wood to gas stove, as described in plan submission) with actual change-outs by type;
- Description of the geographic distribution of change-outs;
- Adequacy of State resources to implement the Program over the expected life of the Program;
- Comparison of projected PM2.5 air quality improvements from implementation of Program (as described in plan submission) to monitored PM2.5 air quality data;
- Discussion of implementation difficulties and potential solutions – e.g., coordination with stove retailers, types of landlord/tenant complaints; and
- Discussion of reasons for changing Program forms, if any.

The first retrospective assessment was included in the 2018 Annual Report.

## Change-outs Completed Between 2016 and 2020

As part of the enforceable measure, the District committed to changing-out 600 stoves between 2016 and 2020. With 413 change-outs completed by December 31, 2020, the District was 187 change-outs, or 31 percent, short of the original estimate. Eighty percent of the baseline devices (old devices) were uncertified wood stoves with a default PM2.5 emission rate of 30.60 pounds of PM2.5 per ton of wood burned (pounds per ton) and an efficiency of 54 percent.<sup>2</sup> The remaining 20 percent were comprised of fireplaces (9 percent) and old certified devices no longer working properly (11 percent). Most of the households replaced their old devices with U.S. EPA certified wood stoves. Fifty households chose pellet stoves and 23 households chose a propane or a kerosene stove as the replacement option (see Appendix A). Figure 1 illustrates the devices replaced through December 31, 2020 grouped by the device type.

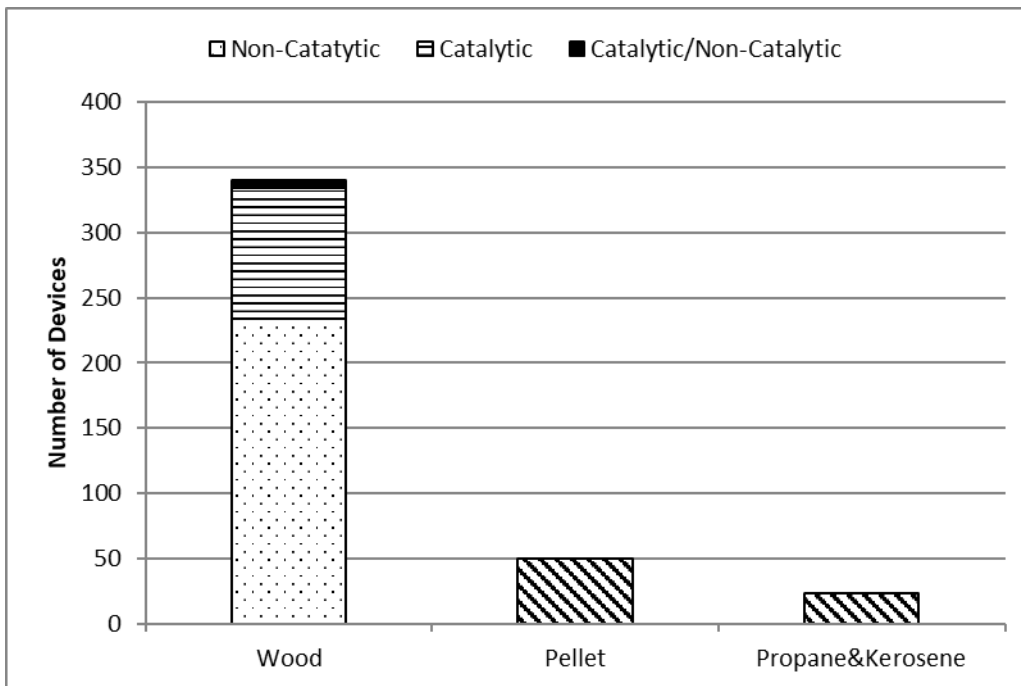
There are two main categories of wood stoves depending on the construction, combustion, and emission characteristics of the device: non-catalytic and catalytic. Non-catalytic stoves have built-in features allowing re-circulating and re-burning of the smoke to keep the devices running cleanly and efficiently. Catalytic stoves are equipped with a ceramic or metal honeycomb device called a combustor. The catalyst material reduces the ignition temperature of the unburned volatile organic compounds (VOC) and carbon monoxide (CO) in the smoke, thus making the smoke ignite at lower temperatures. As these gases burn, the temperature inside the catalyst increases to a point at which the ignition of the gases is self-

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<sup>2</sup> AP-42 Tables 1.10-1 and 1.10-5: <https://www3.epa.gov/ttnchie1/ap42/ch01/final/c01s10.pdf>

sustaining. There are also hybrid models on the market, which combine catalytic and non-catalytic technology.

**Figure 1. Number of Replacement Devices Installed by Type through 12/31/2020**



## Calculations

Initial estimates of emission reductions achieved by replacing uncertified wood stoves with cleaner burning and more energy efficient home heating devices were based on the U.S. EPA Burnwise Emission Calculator (EPA Calculator).<sup>3</sup> The EPA Calculator is designed to calculate the average emission reductions for the entire Program using the default emission factors. In order to come up with device specific emission estimates, CARB staff developed a supplemental calculator, referred to in this Progress Report as the CARB Calculator.

The CARB Calculator was used to estimate PM<sub>2.5</sub> emission reductions achieved by replacing 413 wood stoves between 2016 and 2020 with cleaner-burning and more energy efficient alternatives. The individual calculations for each device, along with the device tracking number and new equipment type, are presented in Appendix A. Listed below are the step-by-step instructions and formulas.

The first step in calculating emission reductions required converting certification test emission rates in grams per hour (g/hr) to emission factors in pounds per ton (lb/ton), as described below:

<sup>3</sup> Available at <https://www.epa.gov/burnwise/burn-wise-additional-resources>

1. The certification test emission rate was scaled upward by 50 percent to reflect the real-world in-home performance;<sup>4</sup>
2. The scaled emission rate was divided by the average burn rate of 1.5 kilograms per hour (kg/hr) to calculate grams of PM2.5 emissions per kilogram of wood (g/kg);<sup>5</sup> and
3. The result was multiplied by 2 to convert g/kg to lb/ton.

The average certification test emission rate for the 340 wood burning devices installed between 2016 and 2020 was 2.7 g/hr. Table 1 provides additional information about the emission limits of the wood burning devices installed in between 2016 and 2020.

**Table 1. Breakdown of Wood Burning Devices Installed between 2016 and 2020 by Emission Rate**

Certification Test Emission Rate	Number of Devices
Not exceeding 2.0 g/hr	117
Between 2.0 g/hr and 4.0 g/hr	182
Greater than 4.0 g/hr	41
<b>Total</b>	<b>340</b>

The following equation was used to calculate emission factor in pounds per ton:

$$\text{Equation 1: } EF = (ER \times 1.5) / BR \times 2$$

Where:

- EF* Emission factor in pounds per ton
- ER* Emission rate in grams per hour
- BR* Average burn rate in kilograms per hour of operation
- 1.5 Factor used to scale certification test emission rate to reflect potential increase in emissions during in-home operation
- 2 Factor used to convert grams per kilogram to pounds per ton

The average emission factor of 5.37 lb/ton calculated using Equation 1 is close to the emission factor of 8.76 lb/ton estimated in the Regulatory Impact Analysis for Residential Wood Heaters NSPS Review Table 4.3 (NSPS Review).<sup>6</sup> Considering that the average

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4 <https://www3.epa.gov/ttnchie1/conference/ei17/session4/houck.pdf>

5 Based on information received from Gary Blais of U.S. EPA Burnwise Program on August 2, 2016, titled "Conversion Factor TB." The spreadsheet was prepared by Tom Butcher, Research Engineer; Brookhaven National Laboratory.

6 [https://www3.epa.gov/ttnecas1/docs/ria/wood-heaters\\_ria\\_final-nsps-revision\\_2015-02.pdf](https://www3.epa.gov/ttnecas1/docs/ria/wood-heaters_ria_final-nsps-revision_2015-02.pdf)

replacement device had about 1/3 lower certification test emission rate than the 4.5 g/hr assumed in NSPS Review, the calculated emission factors seem appropriate.

The following formulas were used to calculate PM2.5 emissions of the old device, the new device, and the difference between them.

$$\text{Equation 2: } E_{old} = (EF_{old} \times WU \times WD)/2000$$

$$\text{Equation 3: } E_{new} = (EF_{new} \times WU \times WD \times (EFC_{old}/EFC_{new}))/2000$$

$$\text{Equation 4: } E_{benefit} = E_{old} - E_{new}$$

Where:

Symbol	Definition
$E_{old}$	Emissions of old device (ton/year)
$E_{new}$	Emissions of new device (ton/year)
$EF_{old}$	Emission factor for the old device (lb/ton)
$EF_{new}$	Emission factor for the replacement device (lb/ton)
$WU$	Wood usage (cords/year)
$WD$	Wood density (ton/cord)
$EFC_{old}$	Device efficiency for the old device (%)
$EFC_{new}$	Device efficiency for the new device (%)
$E_{benefit}$	Emission reductions from change-out (ton/year)

Since emission factors for pellet stoves are considered to be more representative of actual in-home usage,<sup>7</sup> a default emission factor of 3.06 lb/ton, consistent with NSPS Review, was used for all pellet stoves.<sup>8</sup> Portola households that use a pellet stove as a main source of heat use two to three tons of pellet fuel per year.<sup>9</sup> In order to ensure a conservative estimate, three tons were assumed in estimating emission reductions. Consistent with the California's Short-Lived Climate Pollutant Reduction Strategy<sup>10</sup> propane and kerosene fueled heating devices were assumed to have negligible PM2.5 emissions.

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7 <https://www3.epa.gov/ttnchie1/ap42/ch01/related/woodstove.pdf>

8 [https://www3.epa.gov/ttnecas1/docs/ria/wood-heaters\\_ria\\_final-nsps-revision\\_2015-02.pdf](https://www3.epa.gov/ttnecas1/docs/ria/wood-heaters_ria_final-nsps-revision_2015-02.pdf).

9 Quincy Hot Spot personal communication

10 [https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final\\_slcp\\_report.pdf](https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf)

## Estimated Emission Reductions

The District made an enforceable commitment to achieve PM2.5 emission reductions of 0.045 tpd by December 31, 2019 and 0.077 tpd by December 31, 2021 by replacing uncertified wood stoves with cleaner burning and more efficient home heating devices in the Nonattainment Area. The emission reductions can only be used for State Implementation Plan (SIP) purposes if they are fully realized throughout the calendar year. Therefore, the reductions associated with devices replaced through the end of 2016, 2017, 2018, 2019, and 2020 are respectively compared to 2017, 2018, 2019, 2020, and 2021 emission estimates. The level of emission reductions achieved through December 31, 2018 was adequate for meeting 2019 milestone.

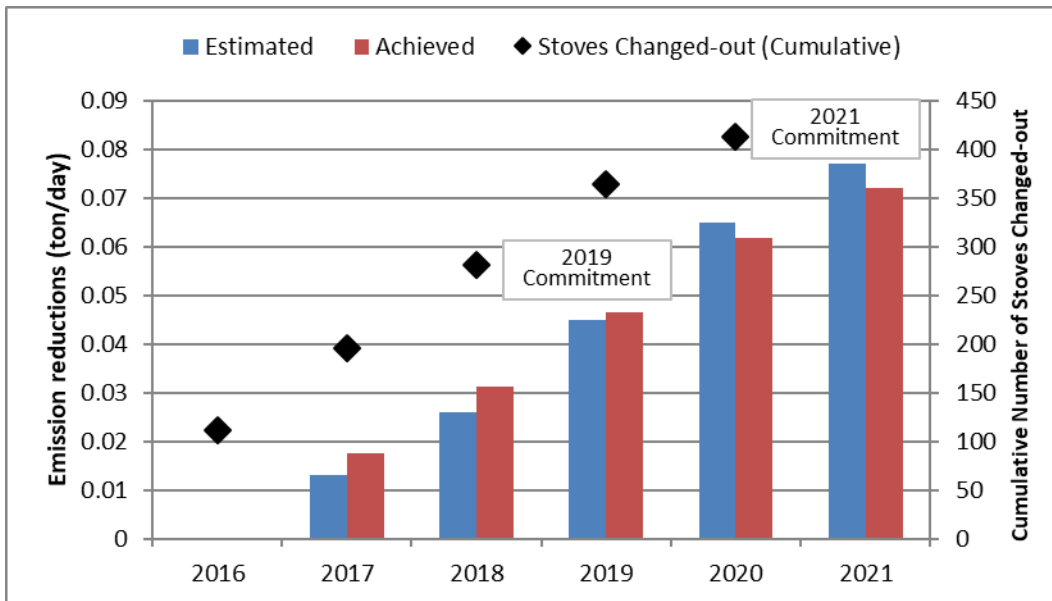
Emission reductions achieved by the end of 2020 should be compared to 2021 emission reduction goals. Although only 413 of the 600 devices estimated to be replaced by the end of 2020 were installed, the emission reductions are only six percent behind the 2021 emission reductions goal. This is because the installed devices have significantly lower PM2.5 emission rates compared to the initial estimate. In order to have a conservative estimate, the assumption was that each qualified uncertified device will be replaced with a Phase II wood stove with an average certification test emission rate of 7.5 g/hr. The 340 wood burning replacement devices installed between 2016 and 2020 had an average certification test emission rate of 2.7 g/hr. The remaining 73 devices were even cleaner and included 50 pellet stoves with average emission rates of 1.3 g/hr and 23 propane/kerosene stoves. The change-out statistics through December 31, 2020, including the number of specific devices and associated emission reductions are summarized in Table 2. Figure 2 compares the reductions achieved to the initial estimates and 2019 and 2021 enforceable commitment.

**Table 2. Summary of Change-outs Completed between 2016 and 2020**

<b>Device Type</b>	<b>Count</b>
Non-catalytic Stoves	234
Catalytic Stoves	100
Catalytic/Non-catalytic Stoves (Hybrid)	6
Pellet Stoves	50
Propane/Kerosene Stove	23
<b>Total Installations as of 12/31/2020</b>	<b>413</b>
<b>PM2.5 Emission Reductions</b>	<b>Amount</b>
Total PM2.5 Emissions Saved (tons per year)	26.287
Total PM2.5 Emissions Saved (tons per day)	0.072
2021 Emission Reductions Goal (tons per day)	0.077
<b>Difference (tons per day)</b>	<b>-0.005</b>



**Figure 2. Comparison of PM2.5 Emission Reductions Achieved to the 2019 and 2021 Enforceable Commitment**



The number of change-outs completed in 2020 was lower than anticipated due to the COVID-19 pandemic. The District had to significantly restrict home visits, installers were hesitant to work inside people’s homes, and obtaining installation permits and securing final inspections was problematic. Many applicants are in a 4 to 6-month backlog in the permit application process and anticipate additional months of backlog for final inspections after stove installation. The District cancelled the annual wood stove fair and curtailed the in-person outreach, conducting all outreach via email, regular mail, and phone. These operational difficulties persist into early 2021 and may continue potentially into 2022.

Despite the slowdown, however, the District should be able to make up for the deficit in emission reductions during 2021. Depending on the type of the replacement device, an estimated 20 to 30 devices need to be replaced in 2021 in order to meet the 2021 milestone commitment.

## Documentation Collected to Confirm Project Compliance with Program Requirements

On a monthly basis, CARB receives reports from the District listing each installation and the associated expenditures by tracking number. Every quarter the District submits progress reports to CARB summarizing change-outs accomplished during the quarter.

Per the Program design, wood stove installers are not reimbursed prior to completing the installation and submit the following documentation to the District:

- Completed Application
- Owner/Tenant Agreement, if applicable
- Cost estimate approved by the District
- Exceeds \$3500/\$4500 form, if applicable
- Photo of the non-certified device installed in the residence before removal
- Photo of the new U.S. EPA certified device installed in the residence
- Program Tracking Form
- Acknowledgement of Training Form
- Verification of surrendering the device to the City of Portola Public Works Yard
- Photo of non-certified device destroyed
- Copy of Permit
- Final Invoice

The wood stove installer delivers the old, uncertified stove to the City of Portola Public Works Yard with the Program Tracking Number written on the stove. City staff destroy the stove, generally by cutting a hole in at least one panel with a plasma torch, and take a picture of the destroyed stove showing the Program Tracking Number. The inoperable stove is recycled. City staff sign the Program Tracking Form, taking responsibility of the old stove from the wood stove installer, and sign the Verification of Destruction Form when the old stove has been destroyed.

After the installation is complete and residents have been using the new stove for at least one winter, the District will follow up with a survey to verify that the installation has been satisfactorily completed and that the resident is following the installer’s recommendations on proper burning techniques and wood storage. The follow-up is conducted by an in-home visit, phone call, and/or mail survey.

## Changes to Relevant Forms

The forms updated in 2020 are summarized in Table 5 and included in Appendix B.

**Table 5. Program Forms Revised in 2020**

Form	Revision Date
NSAQMD Zone 1 Application	5/7/2020
NSAQMD Zone 2 Application	12/29/2020
NSAQMD Chimney Sweep Voucher	7/28/2020
Woodshed Agreement FINAL June2020	6/30/2020

## APPENDIX A

### Greater Portola Wood Stove Change-out Program Emission Benefit Calculator

#### PM2.5 Emission Factors

Constants & Conversions	Value	Unit	Source
Uncertified Stove	30.60	lb PM2.5/ton wood	AP-42, Table 1.10.-1 *
Fireplace	34.60	lb PM2.5/ton wood	AP-42, Table 1.9.-1 **
Pellet Stove	3.06	lb PM2.5/ton wood	2015 NSPS - Regulatory Impact Analysis for Residential Wood Heaters NSPS Review Table 4.3***
2015 NSPS Stove	8.76	lb PM2.5/ton wood	2015 NSPS - Regulatory Impact Analysis for Residential Wood Heaters NSPS Review Table 4.3***
Propane, Electric, or Kerosene	0.00		California Short-Lived Pollutant Reduction Strategy****

#### Efficiency

Constants & Conversions	Value	Unit	Source
Uncertified Stove Efficiency	54	%	AP-42, Table 1.10-5
Certified Stove Efficiency	68	%	AP-42, Table 1.10-5
Pellet Stove Efficiency	68	%	AP-42, Table 1.10-5
Fireplace	7	%	Technology, OMNI

#### Other Constants & Conversions

Constants & Conversions	Value	Unit	Source
Wood Use	4.3	cord/year	District Survey
Wood Density	1.04	ton/cord	Calculator
Average Burn Rate	1.5	kg/hour	Gary Blais Personal Communications
Emission Rate Scaling Factor	1.5		
Conversion from lb to ton	2000		
Conversion from g/kg to lb/ton	2		

\* <https://www3.epa.gov/ttnchie1/ap42/ch01/final/c01s10.pdf>

\*\*<https://www3.epa.gov/ttnchie1/ap42/ch01/final/c01s09.pdf>

\*\*\*[https://www3.epa.gov/ttnecas1/docs/ria/wood-heaters\\_ria\\_final-nsps-revision\\_2015-02.pdf](https://www3.epa.gov/ttnecas1/docs/ria/wood-heaters_ria_final-nsps-revision_2015-02.pdf)

\*\*\*\* [https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final\\_slcp\\_report.pdf](https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf)

\*\*\*\*\*<http://www.omni-test.com/publications/firepl.pdf>

Program Tracking # (YYYY-XXX)	New Fuel	Install Date	Emission Rate (g/hr)	Replacement Device Type	Emission Factor (lb/ton)	Emissions (ton/year) Before	Emissions (ton/year) After	Emissions (ton/year) Difference
2016-001	wood	5/23/16	2.9	NC	5.8	0.0684	0.0103	0.0581
2016-003	wood	8/9/16	1.9	NC	3.8	0.0684	0.0067	0.0617
2016-006	wood	5/11/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-007	wood	8/5/16	3.3	NC	6.6	0.0684	0.0117	0.0567
2016-008	wood	6/24/16	0.58	NC	1.16	0.0684	0.0021	0.0664
2016-009	wood	5/10/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-011	wood	5/27/16	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-012	wood	5/19/16	3.09	NC	6.18	0.0684	0.0110	0.0574
2016-015	wood	5/11/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-016	wood	8/4/16	3	NC	6	0.0684	0.0107	0.0578
2016-017	wood	7/14/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-019	wood	6/13/16	2.3	NC	4.6	0.0684	0.0082	0.0603
2016-020	wood	6/23/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-021	wood	5/25/16	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-022	wood	8/18/16	3.6	NC	7.2	0.0684	0.0128	0.0556
2016-023	wood	6/28/16	2.77	NC	5.54	0.0684	0.0098	0.0586
2016-024	wood	5/19/16	2.4	NC	4.8	0.0684	0.0085	0.0599
2016-025	wood	7/14/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-026	wood	9/1/16	0.08	NC	0.16	0.0684	0.0003	0.0681
2016-028	wood	5/16/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-029	wood	6/21/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-030	wood	10/19/16	3.9	NC	7.8	0.0684	0.0139	0.0546
2016-032	wood	7/25/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-033	wood	8/2/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-035	wood	7/8/16	2.9	NC	5.8	0.0684	0.0103	0.0581
2016-036	wood	6/22/16	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-037	wood	10/11/16	4.2	NC	8.4	0.0684	0.0149	0.0535
2016-038	wood	6/23/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-039	wood	7/26/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-040	wood	7/19/16	3.6	NC	7.2	0.0684	0.0128	0.0556
2016-041	wood	7/8/16	4.1	NC	8.2	0.0684	0.0146	0.0539
2016-042	wood	6/14/16	2.7	NC	5.4	0.0684	0.0096	0.0588
2016-044	wood	7/14/16	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-045	wood	7/12/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-046	wood	7/28/16	2.1	NC	4.2	0.0684	0.0075	0.0610
2016-047	wood	7/22/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-048	wood	12/5/16	3.6	NC	7.2	0.0684	0.0128	0.0556
2016-049	wood	8/3/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-050	wood	7/11/17	2.1	NC	4.2	0.0684	0.0075	0.0610
2016-051	wood	7/26/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-054	wood	8/17/16	2.3	NC	4.6	0.0684	0.0082	0.0603
2016-055	wood	9/14/16	3.6	NC	7.2	0.0684	0.0128	0.0556
2016-056	wood	8/26/16	3.1	NC	6.2	0.0684	0.0110	0.0574
2016-057	wood	12/16/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-058	wood	7/29/16	3	NC	6	0.0684	0.0107	0.0578
2016-059	wood	8/19/16	2.3	NC	4.6	0.0684	0.0082	0.0603
2016-061	wood	8/12/16	3.9	NC	7.8	0.0684	0.0139	0.0546
2016-062	wood	8/9/16	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-064	wood	8/2/16	3	NC	6	0.0684	0.0107	0.0578
2016-065	wood	8/17/16	3.6	NC	7.2	0.0684	0.0128	0.0556
2016-066	wood	12/20/16	3.9	NC	7.8	0.0684	0.0139	0.0546
2016-068	wood	9/15/16	2.3	NC	4.6	0.0684	0.0082	0.0603
2016-069	wood	9/14/16	3.7	NC	7.4	0.0684	0.0131	0.0553
2016-070	wood	11/18/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-072	wood	9/9/16	3.9	NC	7.8	0.0684	0.0139	0.0546
2016-073	wood	4/19/18	3.29	NC	6.58	0.0684	0.0117	0.0567
2016-074	wood	8/9/16	2.1	NC	4.2	0.0684	0.0075	0.0610
2016-075	wood	11/3/16	4.47	NC	8.94	0.0684	0.0159	0.0525
2016-076	wood	9/7/16	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-078	wood	10/13/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-079	wood	8/18/16	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-080	wood	6/27/17	1.9	NC	3.8	0.0684	0.0067	0.0617
2016-082	wood	9/9/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-083	wood	10/11/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-084	wood	9/13/16	3.7	NC	7.4	0.0684	0.0131	0.0553
2016-085	wood	10/19/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-089	wood	9/8/16	3	NC	6	0.0684	0.0107	0.0578
2016-091	wood	10/6/16	3	NC	6	0.0684	0.0107	0.0578
2016-093	wood	12/1/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-096	wood	10/18/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-098	wood	11/18/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-099	wood	5/17/17	4.2	NC	8.4	0.0684	0.0149	0.0535
2016-101	wood	10/10/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-103	wood	10/12/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-104	wood	11/22/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-106	wood	10/21/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-107	wood	2/24/17	1.9	NC	3.8	0.0684	0.0067	0.0617
2016-108	wood	8/18/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-109	wood	12/7/16	3.1	NC	6.2	0.0684	0.0110	0.0574

Program Tracking # (YYYY-XXX)	New Fuel	Install Date	Emission Rate (g/hr)	Replacement Device Type	Emission Factor (lb/ton)	Emissions (ton/year) Before	Emissions (ton/year) After	Emissions (ton/year) Difference
2016-111	wood	11/3/16	4.2	NC	8.4	0.0684	0.0149	0.0535
2016-112	wood	11/21/16	3.9	NC	7.8	0.0684	0.0139	0.0546
2016-113	wood	11/17/16	3	NC	6	0.0684	0.0107	0.0578
2016-115	wood	10/17/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-118	wood	10/31/16	3.89	NC	7.78	0.0684	0.0138	0.0546
2016-120	wood	12/20/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-121	wood	11/8/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-122	wood	11/16/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-123	wood	12/16/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-126	wood	1/27/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-127	wood	9/6/18	3.3	NC	6.6	0.0684	0.0117	0.0567
2016-128	wood	12/19/16	4.47	NC	8.94	0.0684	0.0159	0.0525
2016-129	wood	6/14/17	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-131	wood	11/7/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-132	wood	12/12/16	4.4	NC	8.8	0.0684	0.0156	0.0528
2016-133	wood	12/7/16	3.5	NC	7	0.0684	0.0124	0.0560
2016-134	wood	12/7/16	4	NC	8	0.0684	0.0142	0.0542
2016-135	wood	7/14/17	3.8	NC	7.6	0.0684	0.0135	0.0549
2016-136	wood	12/15/16	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-137	wood	12/20/16	2.3	NC	4.6	0.0684	0.0082	0.0603
2016-138	wood	1/27/17	3.6	NC	7.2	0.0684	0.0128	0.0556
2016-139	wood	1/24/17	3.2	NC	6.4	0.0684	0.0114	0.0571
2016-140	wood	12/16/19	3.9	NC	7.8	0.0684	0.0139	0.0546
2016-145	wood	3/16/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-146	wood	6/20/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-147	wood	3/30/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-148	wood	12/28/16	2.8	NC	5.6	0.0684	0.0099	0.0585
2016-149	wood	1/31/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-150	wood	8/3/17	3.5	NC	7	0.0684	0.0124	0.0560
2016-151	wood	7/6/17	3.59	NC	7.18	0.0684	0.0127	0.0557
2017-001	wood	5/21/17	3.2	NC	6.4	0.0684	0.0114	0.0571
2017-002	wood	8/9/18	3.4	NC	6.8	0.0684	0.0121	0.0563
2017-003	wood	3/9/17	3.9	NC	7.8	0.0684	0.0139	0.0546
2017-155	wood	5/26/17	4.4	NC	8.8	0.0684	0.0156	0.0528
2017-156	wood	5/10/17	3.2	NC	6.4	0.0684	0.0114	0.0571
2017-157	wood	3/27/17	3.2	NC	6.4	0.0684	0.0114	0.0571
2017-159	wood	3/31/17	3.2	NC	6.4	0.0684	0.0114	0.0571
2017-161	wood	4/12/17	1.9	NC	3.8	0.0684	0.0067	0.0617
2017-163	wood	9/5/17	4.2	NC	8.4	0.0684	0.0149	0.0535
2017-164	wood	5/25/17	3	NC	6	0.0684	0.0107	0.0578
2017-165	wood	5/20/17	3.2	NC	6.4	0.0684	0.0114	0.0571
2017-166	wood	6/30/17	0.8	NC	1.6	0.0684	0.0028	0.0656
2017-168	wood	5/19/17	2.3	NC	4.6	0.0684	0.0082	0.0603
2017-169	wood	6/28/17	3.09	NC	6.18	0.0684	0.0110	0.0574
2017-170	wood	9/12/18	3.29	NC	6.58	0.0684	0.0117	0.0567
2017-171	wood	6/7/17	3.8	NC	7.6	0.0684	0.0135	0.0549
2017-172	wood	6/13/17	3.8	NC	7.6	0.0684	0.0135	0.0549
2017-173	wood	7/14/17	3.59	NC	7.18	0.0684	0.0127	0.0557
2017-174	wood	8/22/17	3	NC	6	0.0684	0.0107	0.0578
2017-177	wood	7/17/17	3.4	NC	6.8	0.0684	0.0121	0.0563
2017-179	wood	9/4/18	3.8	NC	7.6	0.0684	0.0135	0.0549
2017-182	wood	8/7/17	2.9	NC	5.8	0.0684	0.0103	0.0581
2017-183	wood	8/24/17	4.29	NC	8.58	0.0684	0.0152	0.0532
2017-184	wood	10/12/17	4.4	NC	8.8	0.0684	0.0156	0.0528
2017-187	wood	7/25/17	3.89	NC	7.78	0.0684	0.0138	0.0546
2017-188	wood	8/23/17	1.9	NC	3.8	0.0684	0.0067	0.0617
2017-190	wood	9/6/17	3.89	NC	7.78	0.0684	0.0138	0.0546
2017-191	wood	8/17/17	3.1	NC	6.2	0.0684	0.0110	0.0574
2017-192	wood	8/16/17	3.99	NC	7.98	0.0684	0.0142	0.0543
2017-193	wood	11/30/17	3.89	NC	7.78	0.0684	0.0138	0.0546
2017-194	wood	7/27/17	4.4	NC	8.8	0.0684	0.0156	0.0528
2017-195	wood	11/30/17	3.5	NC	7	0.0684	0.0124	0.0560
2017-197	wood	12/5/17	3.89	NC	7.78	0.0684	0.0138	0.0546
2017-198	wood	1/24/19	4.4	NC	8.8	0.0684	0.0156	0.0528
2017-199	wood	12/5/17	3.59	NC	7.18	0.0684	0.0127	0.0557
2017-200	wood	11/20/17	3.86	NC	7.72	0.0684	0.0137	0.0547
2017-203	wood	11/15/17	2.1	NC	4.2	0.0684	0.0075	0.0610
2017-205	wood	9/7/17	2.5	NC	5	0.0684	0.0089	0.0595
2017-207	wood	8/30/17	3.5	NC	7	0.0684	0.0124	0.0560
2017-208	wood	12/21/17	3.39	NC	6.78	0.0684	0.0120	0.0564
2017-210	wood	2/7/18	4.4	NC	8.8	0.0684	0.0156	0.0528
2017-211	wood	11/21/17	3.89	NC	7.78	0.0684	0.0138	0.0546
2017-212	wood	11/20/17	3.89	NC	7.78	0.0684	0.0138	0.0546
2017-213	wood	12/1/17	3.8	NC	7.6	0.0684	0.0135	0.0549
2017-216	wood	12/26/17	4.2	NC	8.4	0.0684	0.0149	0.0535
2017-217	wood	12/6/17	3.29	NC	6.58	0.0684	0.0117	0.0567
2017-221	wood	11/9/17	4.4	NC	8.8	0.0684	0.0156	0.0528
2017-223	wood	1/26/18	3.5	NC	7	0.0684	0.0124	0.0560
2017-225	wood	8/2/18	4.2	NC	8.4	0.0684	0.0149	0.0535

Program Tracking # (YYYY-XXX)	New Fuel	Install Date	Emission Rate (g/hr)	Replacement Device Type	Emission Factor (lb/ton)	Emissions (ton/year) Before	Emissions (ton/year) After	Emissions (ton/year) Difference
2017-228	wood	2/6/18	3.3	NC	6.6	0.0684	0.0117	0.0567
2017-229	wood	1/31/18	3.39	NC	6.78	0.0684	0.0120	0.0564
2017-231	wood	2/21/18	3.69	NC	7.38	0.0684	0.0131	0.0553
2017-232	wood	1/10/18	1.9	NC	3.8	0.0684	0.0067	0.0617
2017-234	wood	12/8/17	4.4	NC	8.8	0.0684	0.0156	0.0528
2017-236	wood	3/6/18	1.9	NC	3.8	0.0684	0.0067	0.0617
2018-239	wood	9/21/18	1.54	NC	3.08	0.0684	0.0055	0.0630
2018-241	wood	4/26/18	3.89	NC	7.78	0.0684	0.0138	0.0546
2018-242	wood	10/4/18	1.9	NC	3.8	0.1080	0.0067	0.1012
2018-244	wood	2/6/18	3.89	NC	7.78	0.0684	0.0138	0.0546
2018-245	wood	2/7/18	3.89	NC	7.78	0.0684	0.0138	0.0546
2018-246	wood	9/20/18	1.54	NC	3.08	0.0684	0.0055	0.0630
2018-250	wood	5/13/18	3.5	NC	7	0.0684	0.0124	0.0560
2018-251	wood	6/6/18	3.5	NC	7	0.0684	0.0124	0.0560
2018-254	wood	4/4/18	4.29	NC	8.58	0.1080	0.0152	0.0927
2018-256	wood	4/30/18	3.9	NC	7.8	0.1080	0.0139	0.0941
2018-260	wood	5/9/18	3.29	NC	6.58	0.0684	0.0117	0.0567
2018-261	wood	6/26/18	3.29	NC	6.58	0.0684	0.0117	0.0567
2018-263	wood	5/24/18	4.2	NC	8.4	0.1080	0.0149	0.0930
2018-265	wood	3/28/18	0.58	NC	1.16	0.1080	0.0021	0.1059
2018-266	wood	3/14/18	2.84	NC	5.68	0.0684	0.0101	0.0583
2018-267	wood	5/1/18	3.9	NC	7.8	0.0684	0.0139	0.0546
2018-270	wood	3/19/18	3.9	NC	7.8	0.0684	0.0139	0.0546
2018-271	wood	6/4/18	3.89	NC	7.78	0.0684	0.0138	0.0546
2018-272	wood	8/31/18	3.5	NC	7	0.1080	0.0124	0.0955
2018-273	wood	5/18/18	3.29	NC	6.58	0.0684	0.0117	0.0567
2018-276	wood	9/12/18	1.1	NC	2.2	0.0684	0.0039	0.0645
2018-278	wood	5/8/18	4.29	NC	8.58	0.0684	0.0152	0.0532
2018-280	wood	10/10/18	3.5	NC	7	0.0684	0.0124	0.0560
2018-282	wood	8/3/18	2.69	NC	5.38	0.0684	0.0096	0.0589
2018-287	wood	3/29/19	3.2	NC	6.4	0.0684	0.0114	0.0571
2018-289	wood	9/5/18	3.59	NC	7.18	0.0684	0.0127	0.0557
2018-290	wood	9/21/18	3.29	NC	6.58	0.0684	0.0117	0.0567
2018-292	wood	10/25/18	1.9	NC	3.8	0.0684	0.0067	0.0617
2018-293	wood	12/7/18	3.29	NC	6.58	0.1080	0.0117	0.0963
2018-297	wood	10/3/18	1.9	NC	3.8	0.0684	0.0067	0.0617
2018-298	wood	11/1/18	3.5	NC	7	0.0684	0.0124	0.0560
2018-299	wood	11/1/18	3.2	NC	6.4	0.0684	0.0114	0.0571
2018-301	wood	10/2/18	3.9	NC	7.8	0.0684	0.0139	0.0546
2018-310	wood	11/13/19	3.2	NC	6.4	0.0684	0.0114	0.0571
2018-312	wood	3/21/19	3.59	NC	7.18	0.0684	0.0127	0.0557
2018-314	wood	10/12/18	2.3	NC	4.6	0.1080	0.0082	0.0998
2018-315	wood	11/26/18	1.9	NC	3.8	0.1080	0.0067	0.1012
2018-320	wood	12/6/18	1.54	NC	3.08	0.0684	0.0055	0.0630
2018-323	wood	12/5/19	3	NC	6	0.0684	0.0107	0.0578
2018-324	wood	1/8/19	1.9	NC	3.8	0.0684	0.0067	0.0617
2018-327	wood	3/13/19	3.5	NC	7	0.0684	0.0124	0.0560
2018-328	wood	3/5/19	1.99	NC	3.98	0.0684	0.0071	0.0614
2019-331	wood	5/7/19	4.29	NC	8.58	0.0684	0.0152	0.0532
2019-332	wood	10/3/19	4.29	NC	8.58	0.0684	0.0152	0.0532
2019-333	wood	9/10/19	3.29	NC	6.58	0.0684	0.0117	0.0567
2019-335	wood	4/11/19	3.9	NC	7.8	0.0684	0.0139	0.0546
2019-340	wood	6/6/19	4.29	NC	8.58	0.1080	0.0152	0.0927
2019-342	wood	6/20/19	3.3	NC	6.6	0.1080	0.0117	0.0962
2019-345	wood	5/30/19	1.9	NC	3.8	0.0684	0.0067	0.0617
2019-348	wood	10/14/19	1.9	NC	3.8	0.1080	0.0067	0.1012
2019-349	wood	7/26/19	4.29	NC	8.58	0.0684	0.0152	0.0532
2019-359	wood	10/30/19	1.49	NC	2.98	0.0684	0.0053	0.0631
2019-360	wood	5/13/19	3.7	NC	7.4	0.0684	0.0131	0.0553
2019-361	wood	6/4/19	3	NC	6	0.0684	0.0107	0.0578
2019-362	wood	11/20/19	3.29	NC	6.58	0.0684	0.0117	0.0567
2019-366	wood	10/2/19	4.29	NC	8.58	0.0684	0.0152	0.0532
2019-367	wood	7/11/19	4.29	NC	8.58	0.0684	0.0152	0.0532
2019-369	wood	8/29/19	3.39	NC	6.78	0.1080	0.0120	0.0959
2019-371	wood	5/22/19	3.7	NC	7.4	0.0684	0.0131	0.0553
2019-375	wood	6/13/19	2.6	NC	5.2	0.0684	0.0092	0.0592
2019-376	wood	10/9/19	0.8	NC	1.6	0.0684	0.0028	0.0656
2019-378	wood	6/18/19	4.2	NC	8.4	0.1080	0.0149	0.0930
2019-385	wood	8/13/19	4.29	NC	8.58	0.0684	0.0152	0.0532
2019-386	wood	10/1/19	3.3	NC	6.6	0.0684	0.0117	0.0567
2019-397	wood	8/9/19	3.59	NC	7.18	0.0684	0.0127	0.0557
2019-415	wood	6/3/20	2.5	NC	5	0.0684	0.0089	0.0595
2020-444	wood	8/4/20	1.79	NC	3.58	0.1080	0.0064	0.1016
2020-446	wood	8/12/20	1.4	NC	2.8	0.0684	0.0050	0.0634
2020-457	wood	9/28/20	1.7	NC	3.4	0.0684	0.0060	0.0624
2020-470	wood	10/14/20	2.5	NC	5	0.1080	0.0089	0.0991
2016-010	wood	11/1/17	1.76	CAT	3.52	0.0684	0.0063	0.0622
2016-018	wood	7/21/16	1.8	CAT	3.6	0.0684	0.0064	0.0620
2016-043	wood	8/16/16	1.48	CAT	2.96	0.0684	0.0053	0.0632

Program Tracking # (YYYY-XXX)	New Fuel	Install Date	Emission Rate (g/hr)	Replacement Device Type	Emission Factor (lb/ton)	Emissions (ton/year) Before	Emissions (ton/year) After	Emissions (ton/year) Difference
2016-067	wood	8/18/16	0.45	CAT	0.9	0.0684	0.0016	0.0668
2016-071	wood	8/17/16	0.45	CAT	0.9	0.0684	0.0016	0.0668
2016-086	wood	4/28/20	1.13	CAT	2.26	0.0684	0.0040	0.0644
2016-087	wood	10/5/16	2.42	CAT	4.84	0.0684	0.0086	0.0598
2016-090	wood	10/19/16	2.42	CAT	4.84	0.0684	0.0086	0.0598
2016-095	wood	9/22/16	1.76	CAT	3.52	0.0684	0.0063	0.0622
2016-102	wood	9/21/16	1.48	CAT	2.96	0.0684	0.0053	0.0632
2016-105	wood	11/16/16	1.3	CAT	2.6	0.0684	0.0046	0.0638
2016-130	wood	1/17/17	1.76	CAT	3.52	0.0684	0.0063	0.0622
2017-176	wood	6/21/17	2.4	CAT	4.8	0.0684	0.0085	0.0599
2017-178	wood	9/20/17	0.97	CAT	1.94	0.0684	0.0034	0.0650
2017-201	wood	8/17/17	3.8	CAT	7.6	0.0684	0.0135	0.0549
2017-209	wood	10/4/17	2.42	CAT	4.84	0.0684	0.0086	0.0598
2017-214	wood	11/14/17	0.045	CAT	0.09	0.0684	0.0002	0.0683
2017-215	wood	10/6/17	0.79	CAT	1.58	0.0684	0.0028	0.0656
2017-220	wood	10/31/17	0.35	CAT	0.7	0.0684	0.0012	0.0672
2017-227	wood	10/8/20	1.79	CAT	3.58	0.0684	0.0064	0.0621
2017-230	wood	3/13/18	2.42	CAT	4.84	0.0684	0.0086	0.0598
2018-243	wood	7/19/18	7.5	CAT	15	0.0684	0.0266	0.0418
2018-255	wood	4/23/18	0.09	CAT	0.18	0.0684	0.0003	0.0681
2018-258	wood	4/25/18	2.42	CAT	4.84	0.0684	0.0086	0.0598
2018-262	wood	9/25/18	2	CAT	4	0.0684	0.0071	0.0613
2018-264	wood	3/29/18	2.42	CAT	4.84	0.0684	0.0086	0.0598
2018-268	wood	8/16/18	1.76	CAT	3.52	0.0684	0.0063	0.0622
2018-274	wood	8/8/18	1.3	CAT	2.6	0.0684	0.0046	0.0638
2018-277	wood	9/19/18	1.3	CAT	2.6	0.0684	0.0046	0.0638
2018-279	wood	6/18/18	1.3	CAT	2.6	0.0684	0.0046	0.0638
2018-284	wood	7/24/18	1.3	CAT	2.6	0.0684	0.0046	0.0638
2018-294	wood	7/16/18	1.3	CAT	2.6	0.0684	0.0046	0.0638
2018-300	wood	10/11/18	2.4	CAT	4.8	0.0684	0.0085	0.0599
2018-302	wood	9/18/18	2.2	CAT	4.4	0.0684	0.0078	0.0606
2018-304	wood	10/15/18	2.4	CAT	4.8	0.0684	0.0085	0.0599
2018-305	wood	10/22/18	2.42	CAT	4.84	0.0684	0.0086	0.0598
2018-308	wood	11/30/18	0.9	CAT	1.8	0.1080	0.0032	0.1048
2018-309	wood	11/5/18	2.4	CAT	4.8	0.0684	0.0085	0.0599
2018-313	wood	12/4/18	2.42	CAT	4.84	0.0684	0.0086	0.0598
2018-316	wood	12/4/18	1.3	CAT	2.6	0.0684	0.0046	0.0638
2018-318	wood	11/14/18	1.3	CAT	2.6	0.0684	0.0046	0.0638
2018-319	wood	10/19/20	0.7	CAT	1.4	0.0684	0.0025	0.0659
2018-322	wood	12/16/20	0.72	CAT	1.44	0.1080	0.0026	0.1054
2018-325	wood	2/19/19	0.8	CAT	1.6	0.0684	0.0028	0.0656
2018-326	wood	1/25/19	1.79	CAT	3.58	0.0684	0.0064	0.0621
2019-329	wood	2/12/19	2.59	CAT	5.18	0.0684	0.0092	0.0592
2019-338	wood	10/14/19	0.9	CAT	1.8	0.1080	0.0032	0.1048
2019-339	wood	8/7/19	1.3	CAT	2.6	0.0684	0.0046	0.0638
2019-344	wood	5/14/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-346	wood	7/9/19	0.7	CAT	1.4	0.0684	0.0025	0.0659
2019-347	wood	1/7/20	0.72	CAT	1.44	0.0684	0.0026	0.0659
2019-350	wood	5/29/19	2.42	CAT	4.84	0.0684	0.0086	0.0598
2019-351	wood	6/11/19	1.37	CAT	2.74	0.0684	0.0049	0.0636
2019-352	wood	5/30/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-353	wood	5/21/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-358	wood	6/3/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-364	wood	5/29/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-368	wood	5/30/19	0.73	CAT	1.46	0.0684	0.0026	0.0658
2019-372	wood	10/10/19	0.44	CAT	0.88	0.0684	0.0016	0.0669
2019-373	wood	5/31/19	0.73	CAT	1.46	0.0684	0.0026	0.0658
2019-377	wood	11/21/19	0.72	CAT	1.44	0.1080	0.0026	0.1054
2019-382	wood	6/5/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-389	wood	7/21/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-390	wood	7/21/19	1.76	CAT	3.52	0.0684	0.0063	0.0622
2019-392	wood	8/2/19	0.44	CAT	0.88	0.0684	0.0016	0.0669
2019-395	wood	8/22/19	1.3	CAT	2.6	0.0684	0.0046	0.0638
2019-396	wood	6/4/20	1.79	CAT	3.58	0.0684	0.0064	0.0621
2019-398	wood	10/3/19	1.26	CAT	2.52	0.1080	0.0045	0.1035
2019-400	wood	1/7/20	0.73	CAT	1.46	0.0684	0.0026	0.0658
2019-402	wood	9/30/19	1.26	CAT	2.52	0.0684	0.0045	0.0639
2019-408	wood	12/18/19	0.72	CAT	1.44	0.0684	0.0026	0.0659
2019-409	wood	5/5/20	1.13	CAT	2.26	0.0684	0.0040	0.0644
2019-410	wood	12/3/19	0.72	CAT	1.44	0.0684	0.0026	0.0659
2019-413	wood	12/19/19	0.44	CAT	0.88	0.0684	0.0016	0.0669
2019-416	wood	12/6/19	0.73	CAT	1.46	0.0684	0.0026	0.0658
2019-417	wood	1/22/20	0.9	CAT	1.8	0.0684	0.0032	0.0652
2019-419	wood	1/31/20	1.13	CAT	2.26	0.0684	0.0040	0.0644
2019-420	wood	3/19/20	1.49	CAT	2.98	0.0684	0.0053	0.0631
2019-424	wood	12/30/19	0.8	CAT	1.6	0.0684	0.0028	0.0656
2019-427	wood	4/23/20	0.72	CAT	1.44	0.1080	0.0026	0.1054
2019-428	wood	2/18/20	0.14	CAT	0.28	0.1080	0.0005	0.1075
2019-429	wood	2/19/20	1.49	CAT	2.98	0.0684	0.0053	0.0631

Program Tracking # (YYYY-XXX)	New Fuel	Install Date	Emission Rate (g/hr)	Replacement Device Type	Emission Factor (lb/ton)	Emissions (ton/year) Before	Emissions (ton/year) After	Emissions (ton/year) Difference
2020-431	wood	1/29/20	1.79	CAT	3.58	0.1080	0.0064	0.1016
2020-433	wood	2/12/20	1.9	CAT	3.8	0.1080	0.0067	0.1012
2020-436	wood	7/20/20	0.44	CAT	0.88	0.0684	0.0016	0.0669
2020-439	wood	6/23/20	0.72	CAT	1.44	0.1080	0.0026	0.1054
2020-440	wood	6/11/20	1.13	CAT	2.26	0.1080	0.0040	0.1039
2020-441	wood	9/16/20	0.44	CAT	0.88	0.0684	0.0016	0.0669
2020-447	wood	9/18/20	0.72	CAT	1.44	0.0684	0.0026	0.0659
2020-448	wood	8/11/20	0.72	CAT	1.44	0.1080	0.0026	0.1054
2020-452	wood	9/9/20	0.73	CAT	1.46	0.0684	0.0026	0.0658
2020-454	wood	9/17/20	0.74	CAT	1.48	0.1080	0.0026	0.1053
2020-456	wood	8/18/20	0.729	CAT	1.458	0.0684	0.0026	0.0658
2020-458	wood	10/28/20	0.44	CAT	0.88	0.0684	0.0016	0.0669
2020-462	wood	11/5/20	0.72	CAT	1.44	0.0684	0.0026	0.0659
2020-463	wood	10/20/20	1	CAT	2	0.0684	0.0036	0.0649
2020-464	wood	12/29/20	0.4	CAT	0.8	0.0684	0.0014	0.0670
2020-466	wood	10/15/20	0.7	CAT	1.4	0.0684	0.0025	0.0659
2020-475	wood	12/2/20	0.72	CAT	1.44	0.0684	0.0026	0.0659
2020-483	wood	12/21/20	0.73	CAT	1.46	0.0684	0.0026	0.0658
2016-002	wood	5/18/16	0.8	Hybrid	1.6	0.0684	0.0028	0.0656
2016-004	wood	5/19/16	0.8	Hybrid	1.6	0.0684	0.0028	0.0656
2016-005	wood	5/17/16	0.45	Hybrid	0.9	0.0684	0.0016	0.0668
2016-014	wood	5/25/16	0.45	Hybrid	0.9	0.0684	0.0016	0.0668
2019-330	wood	2/21/19	0.8	Hybrid	1.6	0.0684	0.0028	0.0656
2019-357	wood	5/28/19	0.59	Hybrid	1.18	0.1080	0.0021	0.1059
2016-013	pellet	5/25/16	1.3	pellet	3.06	0.0684	0.0046	0.0638
2016-031	pellet	8/2/16	1.5	pellet	3.06	0.0684	0.0046	0.0638
2016-052	pellet	5/17/17	1.3	pellet	3.06	0.0684	0.0046	0.0638
2016-063	pellet	8/1/17	1.3	pellet	3.06	0.0684	0.0046	0.0638
2016-088	pellet	11/15/16	1.3	pellet	3.06	0.0684	0.0046	0.0638
2016-094	pellet	11/4/16	1.3	pellet	3.06	0.0684	0.0046	0.0638
2016-100	pellet	11/1/16	1.3	pellet	3.06	0.0684	0.0046	0.0638
2016-117	pellet	11/17/16	1.7	pellet	3.06	0.0684	0.0046	0.0638
2016-124	pellet	12/13/16	1.3	pellet	3.06	0.0684	0.0046	0.0638
2016-141	pellet	3/14/17	1.8	pellet	3.06	0.0684	0.0046	0.0638
2016-144	pellet	3/10/17	1.3	pellet	3.06	0.0684	0.0046	0.0638
2017-160	pellet	4/13/17	1.3	pellet	3.06	0.0684	0.0046	0.0638
2017-162	pellet	10/10/17	1.8	pellet	3.06	0.0684	0.0046	0.0638
2017-167	pellet	5/12/17	2.1	pellet	3.06	0.0684	0.0046	0.0638
2017-175	pellet	8/8/17	1.3	pellet	3.06	0.0684	0.0046	0.0638
2017-196	pellet	9/8/17	1.5	pellet	3.06	0.0684	0.0046	0.0638
2017-204	pellet	10/13/17	1.35	pellet	3.06	0.0684	0.0046	0.0638
2017-218	pellet	1/31/18	1.35	pellet	3.06	0.0684	0.0046	0.0638
2017-222	pellet	12/5/17	0.73	pellet	3.06	0.0684	0.0046	0.0638
2017-233	pellet	12/11/17	1.7	pellet	3.06	0.0684	0.0046	0.0638
2017-235	pellet	1/9/18	1.6	pellet	3.06	0.0684	0.0046	0.0638
2017-237	pellet	2/27/18	1.6	pellet	3.06	0.0684	0.0046	0.0638
2018-238	pellet	4/19/18	1.1	pellet	3.06	0.0684	0.0046	0.0638
2018-275	pellet	8/14/18	1.1	pellet	3.06	0.0684	0.0046	0.0638
2018-281	pellet	5/30/18	1.39	pellet	3.06	0.0684	0.0046	0.0638
2018-285	pellet	9/27/18	1.39	pellet	3.06	0.0684	0.0046	0.0638
2018-286	pellet	7/17/18	1	pellet	3.06	0.0684	0.0046	0.0638
2018-291	pellet	8/31/18	1.3	pellet	3.06	0.0684	0.0046	0.0638
2018-296	pellet	10/24/18	1.3	pellet	3.06	0.0684	0.0046	0.0638
2018-303	pellet	11/21/18	1.75	pellet	3.06	0.0684	0.0046	0.0638
2018-317	pellet	5/10/19	0.62	pellet	3.06	0.0684	0.0046	0.0638
2019-336	pellet	12/3/19	1.1	pellet	3.06	0.0684	0.0046	0.0638
2019-337	pellet	5/30/19	0.58	pellet	3.06	0.0684	0.0046	0.0638
2019-365	pellet	9/12/19	1.39	pellet	3.06	0.0684	0.0046	0.0638
2019-370	pellet	8/12/19	1.36	pellet	3.06	0.0684	0.0046	0.0638
2019-379	pellet	8/20/19	1.59	pellet	3.06	0.1080	0.0046	0.1034
2019-381	pellet	8/22/19	1.39	pellet	3.06	0.0684	0.0046	0.0638
2019-383	pellet	7/10/19	1.1	pellet	3.06	0.0684	0.0046	0.0638
2019-387	pellet	1/10/20	1.6	pellet	3.06	0.1080	0.0046	0.1034
2019-388	pellet	9/17/19	0.99	pellet	3.06	0.0684	0.0046	0.0638
2019-391	pellet	9/18/19	1.48	pellet	3.06	0.0684	0.0046	0.0638
2019-393	pellet	9/25/19	1.99	pellet	3.06	0.0684	0.0046	0.0638
2019-399	pellet	10/8/19	1.39	pellet	3.06	0.0684	0.0046	0.0638
2019-407	pellet	10/11/19	1.39	pellet	3.06	0.0684	0.0046	0.0638
2020-435	pellet	9/29/20	0.62	pellet	3.06	0.0684	0.0046	0.0638
2020-437	pellet	9/9/20	1.5	pellet	3.06	0.0684	0.0046	0.0638
2020-443	pellet	9/24/20	0.95	pellet	3.06	0.0684	0.0046	0.0638
2020-449	pellet	11/12/20	1.5	pellet	3.06	0.0684	0.0046	0.0638
2020-461	pellet	10/13/20	1.6	pellet	3.06	0.1080	0.0046	0.1034
2020-480	pellet	12/30/20	0.89	pellet	3.06	0.0684	0.0046	0.0638
2016-053	propane	9/1/16	0	propane	0	0.0684	0.0000	0.0684
2016-092	propane	10/13/16	0	propane	0	0.0684	0.0000	0.0684
2017-185	propane	8/8/17	0	propane	0	0.0684	0.0000	0.0684
2017-186	propane	10/4/17	0	propane	0	0.0684	0.0000	0.0684
2017-202	propane	10/19/17	0	propane	0	0.0684	0.0000	0.0684



Program Tracking # (YYYY-XXX)	New Fuel	Install Date	Emission Rate (g/hr)	Replacement Device Type	Emission Factor (lb/ton)	Emissions (ton/year) Before	Emissions (ton/year) After	Emissions (ton/year) Difference
2017-224	propane	2/23/18	0	propane	0	0.0684	0.0000	0.0684
2018-248	propane	5/30/18	0	propane	0	0.1080	0.0000	0.1080
2018-253	propane	7/13/18	0	propane	0	0.1080	0.0000	0.1080
2018-269	propane	11/7/18	0	propane	0	0.0684	0.0000	0.0684
2018-295	propane	9/24/19	0	propane	0	0.1080	0.0000	0.1080
2018-311	propane	1/17/19	0	propane	0	0.0684	0.0000	0.0684
2019-341	propane	10/8/19	0	propane	0	0.0684	0.0000	0.0684
2019-394	propane	10/17/19	0	propane	0	0.0684	0.0000	0.0684
2019-401	propane	8/27/19	0	propane	0	0.1080	0.0000	0.1080
2019-405	propane	2/4/20	0	propane	0	0.0684	0.0000	0.0684
2020-445	propane	7/7/20	0	propane	0	0.1080	0.0000	0.1080
2016-125	kerosene	1/6/17	0	kerosene	0	0.0684	0.0000	0.0684
2018-259	kerosene	3/27/18	0	kerosene	0	0.0684	0.0000	0.0684
2019-403	kerosene	10/9/19	0	kerosene	0	0.0684	0.0000	0.0684
2019-414	kerosene	12/10/19	0	kerosene	0	0.0684	0.0000	0.0684
2020-430	kerosene	3/12/20	0	kerosene	0	0.0684	0.0000	0.0684
2020-432	kerosene	3/5/20	0	kerosene	0	0.0684	0.0000	0.0684
2020-451	kerosene	10/19/20	0	kerosene	0	0.0684	0.0000	0.0684

**Total Installations**

Total Installations as of 12/31/2020	413
Wood Stoves Total	340
Noncatalytic Stoves	234
Catalytic	100
Hybrids	6
Pellet Stoves	50
Propane Stoves	16
Kerosene Stoves	7
Total PM2.5 Emissions Saved (tons per year)	26.2868
Total PM2.5 Emissions Saved (tons per day)	0.0720

# **Appendix B**

## ***Forms Revised in 2020***

**NORTHERN SIERRA AIR QUALITY MANAGEMENT DISTRICT**[www.myairdistrict.com](http://www.myairdistrict.com)**Program Coordinator: 530-832-0102**

GREATER PORTOLA WOOD STOVE CHANGE-OUT PROGRAM

**APPLICATION FOR ZONE 1 – Homes Within The City of  
Portola Sphere of Influence**

The Northern Sierra Air Quality Management District (District) is offering a change-out program to qualified homeowners within the Greater Portola PM2.5 Non-attainment Area in Plumas County, California for replacement of qualified wood heating devices with new, efficient, clean burning EPA certified devices. This program is funded by the U.S. EPA's 2015 Targeted Air Shed Grant Program, the District's AB2766 program and other agencies. Applications must be received by September 30, 2022. Funding will be available until December 31, 2022 or until funds run out.

1. Zone 1 will be available only to applicants within the City of Portola Sphere of Influence (see attached map).
2. To qualify, the applicant must have a currently installed and operating wood heating device:
  - a. A non-EPA certified wood stove (typically manufactured/installed prior to 1992); OR
  - b. An EPA certified wood stove manufactured 20+ years ago with the emission control technology in disrepair\*; OR
  - c. An EPA certified wood stove manufactured 20+ years ago, in any condition, to be replaced with a pellet, propane or kerosene heating device; OR
  - d. An open fireplace being used as a primary heating device.
3. If the old device is removed from the home prior to application approval, the applicant will be disqualified from this program.
4. If the new device is purchased before application approval, the applicant will be disqualified from this program.
5. Installation must be completed by a District-approved Retailer. Self-installation of the new device is NOT eligible.
6. This program covers the replacement of no more than one qualified wood heating device per home. This replacement should be considered the primary heating device for the home.
7. This program covers the replacement of qualified wood heating devices in manufactured/mobile homes.
8. This program includes renters if an Owner/Tenant agreement is filled out and signed by both parties.
9. Woodstove brands and models will be determined by a District-approved Retailer/Contractor (Retailer) and approved by the District.
10. If your residence is INSIDE the Portola City Sphere of Influence, then you may be eligible for:
  - Up to \$3,500 to replace a qualified wood heating device with an EPA certified wood burning device.
  - Up to \$4,500 to replace a qualified wood heating device with an EPA certified Pellet, Propane or Kerosene heating device.



11. Upgrades over and above the approved amount will be paid by the applicant.
12. The old, wood stove must be surrendered to the Retailer for destruction and scrap recycling. The resale or transfer of the old stove in usable condition, for the purpose of its reuse as a stove, is a violation of the terms of this program and will result in forfeiture of the grant award.
13. A photo will be taken by the Retailer before the old device is removed, a photo will be taken to document destruction and a photo will be taken of the new, certified device after installation.
14. To qualify, each applicant must first complete the attached application. Completed applications must be mailed to the Change-out Project Coordinator at the address on the application form. The application will be reviewed to determine if the preliminary qualification requirements have been met. Once pre-qualified, the applicant will have 30 days to schedule an in-home estimate with a Retailer. The District will approve the estimate before installation commences.

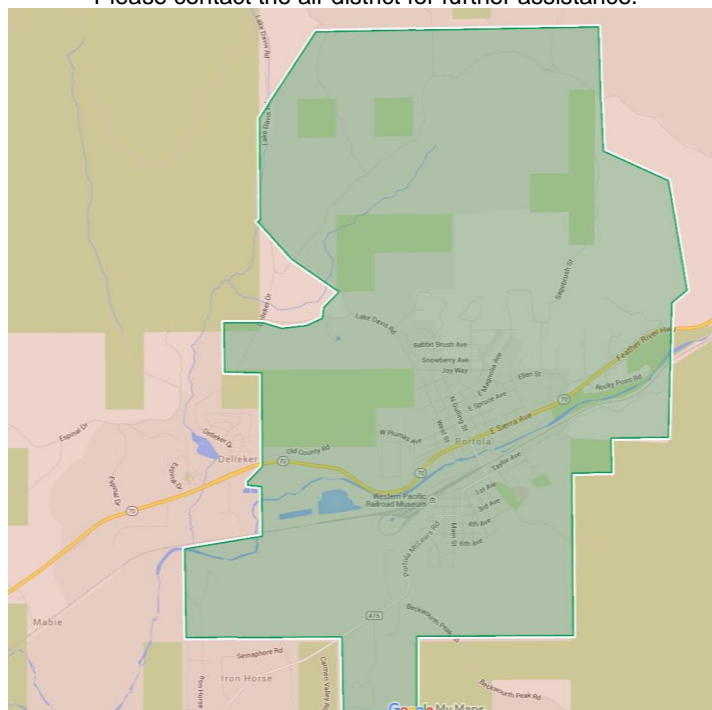
*\*An EPA certified wood stove that is 20+ years old may be repaired when the emission control technology is not functioning properly. If not repairable at a reasonable rate, it may be replaced with a new EPA certified device. This program does not cover general maintenance repairs including, but not limited to, cracked glass doors, cracked brick, worn gaskets, clogged chimney pipe/cap and chimney sweeping/cleaning.*

**NEXT STEP: Applicants will hear from the District within 21 days of receiving a submitted application. Submission of an application does not guarantee funding.**

The mission of this program is to reduce health impacts by reducing fine particulate (PM2.5) in the air from wood smoke. These microscopic particles go deep into the lungs where they may become trapped. PM2.5 is linked with premature death, work and school absences, and significant health problems including aggravated asthma, acute respiratory symptoms (such as chest pain and coughing), chronic bronchitis and decreased lung function. Sensitive individuals (those most at risk from exposure to smoke) are the elderly, children, asthmatics, adults with pre-existing heart and lung disease, pregnant women, and people engaging in strenuous outdoor activity.

## MAP of Zone 1: CITY OF PORTOLA SPHERE OF INFLUENCE

Please contact the air district for further assistance.



**APPLICANT CERTIFICATION**

By submitting this application, I certify the following:

- a. I understand that only currently installed and operating qualified wood heating devices are eligible to be replaced under this program.
- b. No retroactive rebates are available. All applications must be received by Sept. 30, 2022.
- c. I understand I will schedule an estimate with a District-approved Retailer within 30 days of receiving a letter of pre-qualification from the Northern Sierra Air Quality Management District (District). This deadline may be extended at the discretion of the District.
- d. I understand that only one qualified wood heating device will be repaired/replaced with a certified device with funding from this program for primary heating of this residence.
- e. I understand I may be required to provide proof of my monthly income.
- f. I understand that if I qualify, I will use only a District-approved Retailer (Retailer). Devices purchased with funds from this program will be professionally installed. Self-installation of the device is prohibited. Any additional construction or handyman services not done by the Retailer will not be covered under this program.
- g. I will be replacing an operable qualified wood heating device that is currently in use in my residence. The Retailer who installs the new device is responsible for removing the old device (or rendering a fireplace inoperable). The old device will be rendered permanently and irreversibly inoperable.
- h. I understand that I will be disqualified from this program if I provide the District with false information or if the old, qualified wood heating device is removed from the residence prior to application approval or if a new device is purchased prior to application approval.
- i. The District does not warranty any devices purchased under this program, including, but not limited to, the quality, functionality or satisfaction of the device.
- j. I agree to hold harmless the District and its directors, employees and agents from any and all loss, damage, or liability that arises out of or is in any way connected with installation or use of the device purchased in connection with this program.
- k. I will follow proper burning practices as discussed by the Retailer and in accordance with EPA BurnWise educational materials. I will operate this device according to the manufacturer's instructions and I will not burn pressure treated wood, garbage/trash, plastic or any other prohibited materials.
- l. I understand that proper wood burning practices (e.g., burning only dry, natural wood that has been seasoned at least 6 months) and proper stove installation and operation (e.g., maintaining a hot fire) are critical to the effectiveness of my new device.
- m. I understand that I will participate in follow up training and a survey conducted by the District.



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**APPLICATION FORM For Zone 1 – Homes within the City of Portola (Sphere of Influence)**

All sections of this application must be completed. A copy should be retained by the applicant for his or her records. The District is not responsible for materials lost by mail. Please review the Applicant Certification (page 3) before signing at the bottom. Submit the completed application by email, mail, or hand delivery to:

Julie Ruiz, Change-out Project Coordinator, NSAQMD  
[julie@myairdistrict.com](mailto:julie@myairdistrict.com)  
P.O. Box 2227, Portola, CA 96122  
257 E. Sierra, Unit E, Portola, CA 96122  
[www.myairdistrict.com](http://www.myairdistrict.com)

**Applicant Information:**

Name: \_\_\_\_\_

Physical Home Address: \_\_\_\_\_

Is this a mobile or manufactured home?  Yes  No

Mailing Address (if different): \_\_\_\_\_

Phone Number: \_\_\_\_\_ Email (if available): \_\_\_\_\_

**Existing Primary Wood Heating Device:**

Wood Stove:  Make/Model: \_\_\_\_\_ Year Stove Manufactured: \_\_\_\_\_

Fireplace:

My monthly income is: \_\_\_\_\_

The number of people living in the home (including adults and children under 18): \_\_\_\_\_

The EPA certified device I am interested in:  Wood stove  Pellet stove  
 Propane stove  Kerosene monitor

*The District strongly encourages upgrading to a non-wood heating device to further decrease emissions.*

**Additional Information:**

How did you hear about the Change-out Program? \_\_\_\_\_

Why are you applying? (Please check all that apply.)

- Not satisfied with current device;
- To reduce pollution;
- To save money
- Other: \_\_\_\_\_

Was the grant funding a significant factor in replacing your stove?  Yes  No

How many wood burning stoves are on your property?  1  2  3

In a typical heating season, how many cords of wood do you typically burn? \_\_\_\_\_

Is your wood stove used as a primary source of heat?  Yes  No

What % of wood is used in your primary stove?  100%  75%  50%

Do you know how old your stove is? If yes, how old: \_\_\_\_\_ years

In which room of your house is your wood stove located? \_\_\_\_\_

Do you own this home?  Yes, Owner  No, Renter

**I understand and agree to all conditions of this program (pages 1-3):** \_\_\_\_\_

*(applicant signature required)*



**Home Heating Survey** *Please circle or fill in answers below:*

1. Status of home ownership: OWNER RENTER
2. Is your home a mobile/modular/manufactured home? YES NO
3. What year was this home built (approximately)? \_\_\_\_\_
4. What year did you purchase home or move into home? \_\_\_\_\_
5. Is this home your primary or secondary residence? PRIMARY SECONDARY
6. What is your monthly income? \_\_\_\_\_
7. How many people live in your household? \_\_\_\_\_
8. Does your residence have a wood burning device? YES NO (skip to #10)
9. If yes, circle the type of device it is (if more than one, the one you use most):

WOOD STOVE FIREPLACE PELLET STOVE FIREPLACE INSERT OUTDOOR WOOD BOILER

If your home has a second wood burning device, please indicate the type from the list above:

\_\_\_\_\_

10. If burning wood, where is it obtained? CUT BUY
11. If purchasing wood, what is the cost per cord? \$ \_\_\_\_\_
12. How many cords do you use annually? \_\_\_\_\_
13. Is your main wood burning device EPA certified (tag on back of device)? YES NO NOT SURE
14. What is the primary fuel you use for heating your home?

WOOD PROPANE FUEL OIL ELECTRICITY SOLAR KEROSENE  
 LPG GENERATOR DIESEL GENERATOR OTHER \_\_\_\_\_

15. What is the secondary fuel you use for heating your home (if any)?

WOOD PROPANE FUEL OIL ELECTRICITY SOLAR KEROSENE  
 LPG GENERATOR DIESEL GENERATOR OTHER \_\_\_\_\_

16. If your residence has a heated outbuilding, what is the fuel used? (If no heated outbuilding, skip question)

WOOD PROPANE FUEL OIL ELECTRICITY SOLAR KEROSENE  
 LPG GENERATOR DIESEL GENERATOR OTHER \_\_\_\_\_

- Do you receive any assistance from an energy assistance program (i.e. LIHEAP)? YES NO
- Are there school-age children in the home (K-12)? YES NO
- Are there any individuals over the age of 62 in the home? YES NO
- Is anyone in the home diagnosed with asthma or any respiratory/breathing disorder? YES NO
- Have you upgraded windows or insulation since moving into the home? YES NO
- Would you be willing to participate in a more in-depth survey by phone? YES NO

Date Survey Completed: \_\_\_\_\_





**NORTHERN SIERRA AIR QUALITY MANAGEMENT DISTRICT**[www.myairdistrict.com](http://www.myairdistrict.com)**Program Coordinator: 530-832-0102**

GREATER PORTOLA WOOD STOVE CHANGE-OUT PROGRAM

**APPLICATION FOR ZONE 2 – Homes Located Outside the City of Portola Sphere of Influence and Within the Greater Portola PM2.5 Nonattainment Area**

The Northern Sierra Air Quality Management District (District) is offering a change-out program to qualified homeowners within the Greater Portola PM2.5 Non-attainment Area in Plumas County, California for replacement of old, qualified wood/pellet heating devices with new, efficient, clean burning EPA certified devices. This program is funded by the U.S. EPA's 2015 and 2018 Targeted AirShed Grant Programs, the District's AB2766 program and other agencies. Applications must be received by December 31, 2024. Funding will be available until April 30, 2025 or until funds run out.

1. Zone 2 funding will be available to applicants outside the City of Portola Sphere of Influence BUT within the Greater Portola PM2.5 Nonattainment Area (see attached map).
2. To qualify, the applicant must have a currently installed and operating heating device:
  - a. A non-EPA certified wood/pellet stove (typically manufactured prior to 1992); OR
  - b. An EPA certified wood/pellet stove manufactured 20+ years ago with the emission control technology in disrepair\*; OR
  - c. An EPA certified wood/pellet stove manufactured 20+ years ago, in any condition, to be replaced with a pellet, propane or kerosene heating device; OR
  - d. An open fireplace being used as a primary heating device.
3. If the old device is removed from the home prior to application approval, the applicant may be disqualified from this program.
4. If the new device is purchased before application approval, the applicant may be disqualified from this program.
5. Installation must be completed by a District-approved Retailer/Contractor (Retailer). Self-installation of the new device is NOT eligible.
6. Program covers the replacement of qualified heating devices in manufactured/mobile homes.
7. Program includes renters. An Owner/Tenant agreement must be signed by both parties.
8. In Zone 2, qualified applicants may be eligible for:
  - Up to \$1,500 to replace a qualified wood heating device with an EPA certified wood burning device that meets current New Source Performance Standards (NSPS).
  - Up to \$3,000 to replace a qualified wood/pellet heating device with an EPA certified pellet, propane or kerosene heating device.
  - Up to \$10,000 to replace a qualified wood/pellet heating device with an ENERGY STAR® compliant air source heat pump (electric).
  - Up to \$3,500 for low income (documentation required) residents to replace a qualified wood heating device with an EPA certified wood burning device that meets current New Source Performance Standards (NSPS).
  - Up to \$4,500 for low income (documentation required) residents to replace a qualified wood/pellet heating device with an EPA certified pellet, propane or kerosene device.



9. Heating device brands/models will be determined by Retailer and approved by the District.
10. Upgrades over and above the approved amount will be paid by the applicant.
11. The old, qualified stove must be surrendered to the Retailer for destruction and scrap recycling. The resale or transfer of the old stove in usable condition, for the purpose of its reuse as a stove, is a violation of the terms of this program and will result in forfeiture of the grant award.
12. A photo will be taken by the Retailer before the old device is removed, a photo will be taken to document destruction and a photo will be taken of the new, certified device after installation.
13. To qualify, each applicant must first complete the attached application. Completed applications must be mailed to the Change-out Project Coordinator at the address on the application form. The application will be reviewed to determine if the preliminary qualification requirements have been met. Once pre-qualified, the applicant will have 30 days to schedule an in-home estimate with a Retailer. The District will approve the estimate before installation commences.

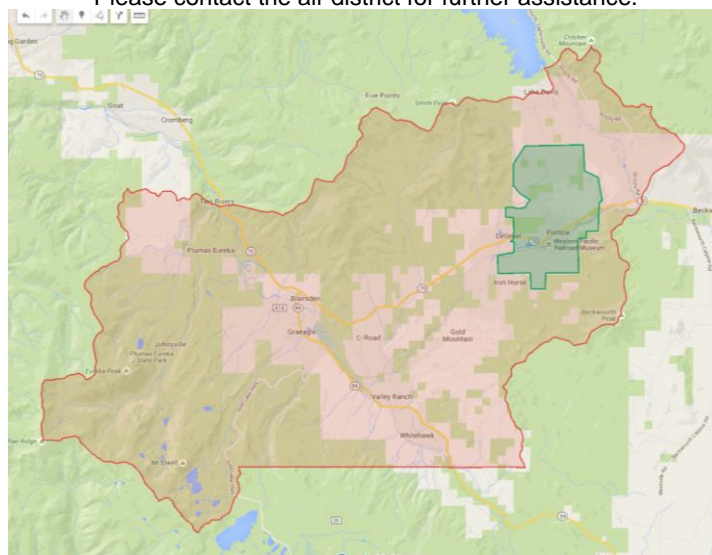
*\*An EPA certified wood stove that is 20+ years old may be repaired when the emission control technology is not functioning properly. If not repairable at a reasonable rate, it may be replaced with a new EPA certified device. This program does not cover general maintenance repairs including, but not limited to, cracked glass doors, cracked brick, worn gaskets, clogged chimney pipe/cap and chimney sweeping/cleaning.*

**NEXT STEP: Applicants will hear from the District within 21 days of receiving a submitted application. Submission of an application does not guarantee funding.**

The mission of this program is to reduce health impacts by reducing fine particulate (PM2.5) in the air from wood smoke. These microscopic particles go deep into the lungs where they may become trapped. PM2.5 is linked with premature death, work and school absences, and significant health problems including aggravated asthma, acute respiratory symptoms (such as chest pain and coughing), chronic bronchitis and decreased lung function. Sensitive individuals (those most at risk from exposure to smoke) are the elderly, children, asthmatics, adults with pre-existing heart and lung disease, pregnant women, and people engaging in strenuous outdoor activity.

**MAP of Zone 2: HOMES OUTSIDE THE CITY OF PORTOLA SPHERE OF INFLUENCE AND WITHIN THE NONATTAINMENT AREA**

Please contact the air district for further assistance.



**INCLUDES COMMUNITIES OF IRON HORSE, DELLEKER, C ROAD, MOHAWK VISTA, PLUMAS-EUREKA, BLAIRSDEN-GRAEAGLE, GOLD MOUNTAIN, WHITEHAWK, CLIO, JOHNSTVILLE, AND PORTIONS OF LAKE DAVIS**



**APPLICANT CERTIFICATION**

By submitting this application, I certify the following:

- a. I understand that only currently installed and operating qualified wood/pellet heating devices are eligible to be replaced under this program.
- b. No retroactive rebates are available.
- c. I understand I will schedule an estimate with a District-approved Retailer within 30 days of receiving a letter of pre-qualification from the Northern Sierra Air Quality Management District (District). This deadline may be extended at the discretion of the District.
- d. I understand I may be required to provide proof of my monthly income.
- e. I understand that if I qualify, I will use only a District-approved Retailer (Retailer). Devices purchased with funds from this program will be professionally installed. Self-installation of the device is prohibited. Any additional construction or handyman services not done by the Retailer will not be covered under this program.
- f. I will be replacing an operable qualified heating device that is currently in use in my residence. The Retailer who installs the new device is responsible for removing the old device (or rendering a fireplace inoperable). The old device will be rendered permanently and irreversibly inoperable.
- g. I understand that I will be disqualified from this program if I provide the District with false information or if the old, qualified heating device is removed from the residence prior to application approval or if a new device is purchased prior to application approval.
- h. I understand the District does not warranty any devices purchased under this program, including, but not limited to, the quality, functionality or satisfaction of the device.
- i. I agree to hold harmless the District and its directors, employees and agents from any and all loss, damage, or liability that arises out of or is in any way connected with installation or use of the device purchased in connection with this program.
- j. I will follow proper burning practices as discussed by the Retailer and in accordance with EPA BurnWise educational materials. I will operate this device according to the manufacturer's instructions and I will not burn pressure treated wood, garbage/trash, plastic or any other prohibited materials.
- k. I understand that proper wood burning practices (e.g., burning only dry, natural wood that has been seasoned at least 6 months) and proper stove installation and operation (e.g., maintaining a hot fire) are critical to the effectiveness of my new device.
- l. I will only burn wood that is less than 20% moisture content. The District may provide a moisture meter if I do not have one.
- m. I understand that an annual cleaning and inspection by a professional chimney sweep is critical to maintaining a wood/pellet device.
- n. I understand that I will participate in follow up training and a survey conducted by the District.



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**APPLICATION FORM For Zone 2 – Homes outside the City of Portola (Sphere of Influence)**

All sections of this application must be completed. A copy should be retained by the applicant for his or her records. The District is not responsible for materials lost by mail. Please review the Applicant Certification (page 3) before signing at the bottom. Submit the completed application by email, mail or fax to:

Julie Ruiz, Change-out Project Coordinator, NSAQMD  
[julie@myairdistrict.com](mailto:julie@myairdistrict.com)  
P.O. Box 2227, Portola, CA 96122  
530-832-0101 (FAX)

**Applicant Information:**

Name: \_\_\_\_\_

Physical Home Address: \_\_\_\_\_

\_\_\_\_\_

Is this a mobile or manufactured home?  Yes  No

Mailing Address (if different): \_\_\_\_\_

Phone Number: \_\_\_\_\_ Email (if available): \_\_\_\_\_

**Existing Primary Heating Device:**

Wood/Pellet Stove:  Make/Model: \_\_\_\_\_ Year Stove Manufactured: \_\_\_\_\_

Fireplace:

My monthly income is: \_\_\_\_\_

The number of people living in the home (including adults and children under 18): \_\_\_\_\_

The EPA certified device I am interested in:  Wood stove  Pellet stove

Propane stove  Kerosene monitor  Heat pump

*The District strongly encourages upgrading to a non-wood heating device to further decrease emissions.*

**Additional Information:**

How did you hear about the Change-out Program? \_\_\_\_\_

Why are you applying? (Please check all that apply.)

- Not satisfied with current device;
- To reduce pollution;
- To save money
- Other: \_\_\_\_\_

Was the grant funding a significant factor in replacing your stove?  Yes  No

How many wood burning stoves are on your property?  1  2  3

In a typical heating season, how many cords of wood do you typically burn? \_\_\_\_\_

Is your wood stove used as a primary source of heat?  Yes  No

What % of wood is used in your primary stove?  100%  75%  50%

Do you know how old your stove is? If yes, how old: \_\_\_\_\_ years

In which room of your house is your wood stove located? \_\_\_\_\_

Do you own this home?  Yes, Owner  No, Renter

**I understand and agree to all conditions of this program (pages 1-3):** \_\_\_\_\_

***(applicant signature required)***



**Home Heating Survey** *Please circle or fill in answers below:*

1. Status of home ownership: OWNER RENTER
2. Is your home a mobile/manufactured home? YES NO
3. What year was this home built (approximately)? \_\_\_\_\_
4. What year did you purchase home or move into home? \_\_\_\_\_
5. Is this home your primary or secondary residence? PRIMARY SECONDARY
6. What is your monthly income? \_\_\_\_\_
7. How many people live in your household? \_\_\_\_\_
8. Does your residence have a wood/pellet burning device? YES NO (you may not qualify for this program)
9. If yes, circle the type of device it is (if more than one, the one you use most):

WOOD STOVE FIREPLACE PELLETT STOVE FIREPLACE INSERT OUTDOOR WOOD BOILER

If your home has a second wood burning device, please indicate the type from the list above:

\_\_\_\_\_

10. If burning wood, where is it obtained? CUT BUY
11. If purchasing wood, what is the cost per cord? \$ \_\_\_\_\_
12. How many cords do you use annually? \_\_\_\_\_
13. Is your main wood burning device EPA certified (tag on back of device)? YES NO NOT SURE
14. What is the primary fuel you use for heating your home?

WOOD PROPANE FUEL OIL ELECTRICITY SOLAR KEROSENE  
 LPG GENERATOR DIESEL GENERATOR OTHER \_\_\_\_\_

15. What is the secondary fuel you use for heating your home (if any)?

WOOD PROPANE FUEL OIL ELECTRICITY SOLAR KEROSENE  
 LPG GENERATOR DIESEL GENERATOR OTHER \_\_\_\_\_

16. If your residence has a heated outbuilding, what is the fuel used? (If no heated outbuilding, skip question)

WOOD PROPANE FUEL OIL ELECTRICITY SOLAR KEROSENE  
 LPG GENERATOR DIESEL GENERATOR OTHER \_\_\_\_\_

- Do you receive any assistance from an energy assistance program (i.e. LIHEAP)? YES NO
- Are there school-age children in the home (K-12)? YES NO
- Are there any individuals over the age of 62 in the home? YES NO
- Is anyone in the home diagnosed with asthma or any respiratory/breathing disorder? YES NO
- Have you upgraded windows or insulation since moving into the home? YES NO
- Would you be willing to participate in a more in-depth survey by phone? YES NO

Date Survey Completed: \_\_\_\_\_



**LOW INCOME VERIFICATION FORM**

Residents located outside of the City of Portola Sphere of Influence, but within the Nonattainment area who wish to receive the maximum amount of funding based on income, must complete this form and submit it with an application.

2021 Gross Income Guidelines (source: CA Dept. of Community Services & Development):

Family Size	1	2	3	4	5	6	7	8
Monthly Gross Income	\$2,431	\$3,179	\$3,927	\$4,675	\$5,423	\$6,171	\$6,311	\$6,452

Have you previously applied for HEAP/LIHEAP assistance?  Yes  No

What is the monthly income of your entire household? \_\_\_\_\_

Be sure to count all of the following incomes:

- Wages
- TANF (AFDC)
- Workers Compensation
- Interest Income
- Social Security, SSI, SSP
- Disability Payments
- Pensions
- Unemployment Benefits
- Child Support
- Spousal Support
- Settlements

How many people live in your household? \_\_\_\_\_

**ATTACH INCOME DOCUMENTATION:**

(please include one of the following for each person living at this residence)

- Pay stub or
- Benefit letter or
- Income statement

**Please note that these documents will not be returned.**

Upon verification of income, applicant will be eligible for:

- Up to \$3,500 to replace a non-certified wood burning device with an EPA certified wood burning device.
- Up to \$4,500 to replace a non-certified wood burning device with a Pellet, Propane or Kerosene heater.

I declare, under penalty of perjury, that the information on this application is true and correct:

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date





GREATER PORTOLA WOOD STOVE CHANGE-OUT PROGRAM

**CHIMNEY SWEEP VOUCHER**

*Proper maintenance, including annual chimney sweeping, is necessary for optimal stove performance of any new EPA certified heating device. Present this voucher to one of the chimney sweeps listed below for a complimentary chimney cleaning service, in accordance with the conditions listed.*

**CHIMNEY SWEEP PROVIDERS\*:**

All-Star Chimney Cleaning and More! // 530-283-3583 // allstarchimney@hotmail.com

Mac’s Chimney Sweep // 530-283-9663 // macschimneysweeping@gmail.com

Tyrus Chimney Sweep // 530-927-7459 // tyruschimneysweep@gmail.com

**CONDITIONS:**

- ✓ This voucher will expire September 30, 2022.
- ✓ Voucher must be redeemed at the time of service with a participating chimney sweep listed above.
- ✓ Voucher is good for one chimney sweep service not to exceed \$200.00. Any cost over \$200.00 will be paid to the chimney sweep provider at the time of service.
- ✓ Each chimney sweep provider reserves the right to set their own pricing and scheduling.

**TO BE FILLED OUT BY GREATER PORTOLA WOOD STOVE CHANGE-OUT COORDINATOR:**

Date of Voucher: \_\_\_\_\_ Program Tracking #: \_\_\_\_\_

Customer’s Name: \_\_\_\_\_ Customer’s Address: \_\_\_\_\_

**TO BE FILLED OUT BY CHIMNEY SWEEP:**

Date of Service: \_\_\_\_\_ Total Cost of Service: \_\_\_\_\_

Provider: \_\_\_\_\_

*The undersigned hereby releases the Northern Sierra Air Quality Management District (NSAQMD) and the chimney sweep provider, its officers, agents and employees from any and all claims, demands, rights and causes of action of any kind that the undersigned may have on account of or in any way growing out of damages or liability that may arise as a result of the chimney sweep service provided. If any provision of this Agreement is determined by an appropriate court of jurisdiction to be unenforceable, the remaining provisions herein are stipulated to be enforceable and binding.*

**Signature (Homeowner/Tenant):** \_\_\_\_\_

***Only participants of the Greater Wood Stove Change-Out Program may redeem this voucher.***

*\*Also valid for a pellet stove cleaning by Quincy Hot Spot IF the pellet stove was part of the change-out program & installed by QHS.*



## Wood Shed / Wood Shed Materials Recipient Application and Agreement

### To be filled out by Homeowner/Tenant \*:

Name: \_\_\_\_\_

Applying for (check One): Materials Delivery \_\_\_\_\_ or Completed Woodshed \_\_\_\_\_

#### *Physical Home Location:*

#### *Mailing address, if different:*

Address: \_\_\_\_\_

Address: \_\_\_\_\_

City \_\_\_\_\_ Zip \_\_\_\_\_

City \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

*\*if tenant also include homeowner agreement*

The Northern Sierra Air Quality Management District, with funding provided by the U.S. EPA, is providing you with this resource for firewood storage to keep your wood seasoned and dry.

According to the U.S. EPA BurnWise program, wood moisture content should be less than 20%. Greater moisture content leads to less heat, excessive smoke, and additional creosote buildup in your chimney pipe. Your new woodshed holds one cord of firewood and can help you store your firewood so that it can season and dry properly.

*Select one of the below and initial:*

If recipient is accepting a completed shed by signing below the recipient acknowledges receipt of best placement and use procedures. \_\_\_\_\_ **Initials of applicant**

If recipient is accepting wood shed build materials by signing below the recipient guarantees that a wood shed will be built in accordance with the plans provided and agrees to allow a representative from the Northern Sierra Air Quality Management District to follow-up and document shed build and placement within 3 months from receipt of build materials. \_\_\_\_\_ **Initials of applicant**



By signing below, and through acceptance of the shed or materials, recipient agrees to not sell, transport, or dispose of the wood shed or materials from the location at which the shed or materials is accepted and delivered. Recipient also agrees to use the completed shed as a firewood storage area for wood to be used in their EPA certified wood burning device.

**HOLD HARMLESS, WAIVER OF LIABILITY AND ASSUMPTION OF RISK – NORTHERN SIERRA AIR QUALITY MANAGEMENT DISTRICT**

The undersigned is receiving a Woodshed from the Northern Sierra Air Quality Management District (“District”) as part of the District’s Greater Portola Wood Stove Change-Out Program.

In the event of injury or illness arising out of or in the course of receiving and or using the woodshed or materials, the undersigned agrees to release and hold harmless the persons delivering the shed or the materials and the District from any liability for bodily injury or personal injury arising from the woodshed or delivery.

The undersigned hereby releases the persons delivering the woodshed or materials and the District, its officers, agents and employees from any and all claims, demands, rights and causes of action of any kind that the undersigned may have on account of or in any way growing out of damages or liability that may arise as a result of the undersigned's receipt or use of the woodshed. Further, the undersigned agrees to hold the persons delivering the woodshed and the District, its officers, agents and employees harmless from any damages or liability and does hereby assume any risk of injury or death which may result.

If any provision of this Agreement is determined by an appropriate court of jurisdiction to be unenforceable, the remaining provisions herein are stipulated to be enforceable and binding.

Executed this \_\_\_\_\_ day of \_\_\_\_\_ (month), at \_\_\_\_\_, California.

**Signature (Homeowner/Tenant\*):** \_\_\_\_\_

\* If Tenant must also have homeowner agreement in place

**TO BE FILLED OUT BY NSAQMD:**

Program Tracking Number: \_\_\_\_\_ TAG Identifier: \_\_\_\_\_

Home Owner \_\_\_\_\_ Tenant (must have accompanying homeowner agreement) \_\_\_\_\_

Completed Woodshed Delivery Date: \_\_\_\_\_

*or*

Materials Delivery Date: \_\_\_\_\_ and Verification of Build Date: \_\_\_\_\_

