

Projects that Reduce Residential Wood Smoke Emissions

Description: Butte County, CA, designated nonattainment for the 2006 24-hr PM_{2.5} NAAQS, was able to reach attainment through a combination of wood-burning device change outs, curtailment programs, outreach, and rulemaking.

Title	Reaching Attainment in Butte County Through Wood Smoke Reduction
Location (City, Counties, Region)	Butte County, California
Population/Number of homes covered by project	<ul style="list-style-type: none"> • 220,000
Objectives (NAAQS attainment/maintenance, indoor air, visibility, air toxics, public education)	<ul style="list-style-type: none"> • Attaining 2006 24-hr PM_{2.5} NAAQS after being designated nonattainment in 2009.
Milestones (Project time frame, number of changeouts, air quality goals, number of low income homes targeted if applicable)	<ul style="list-style-type: none"> • October 2013 - Clean Data Finding . • July 2018 - Redesignation Request approved by EPA. • 858 Wood Burning Devices Replaced between 2005 and 2021. • 2005 - Current - Voluntary Curtailment Program (Check Before You Light)
Budget (projected/actual cost)	<ul style="list-style-type: none"> • Wood-burning Device Change Out Program (2013-2015): \$746,215 • Woodsmoke Reduction Program (2018-2021): \$507,479
Funding Sources (government funds, grants, Supplemental Environmental Project, fees, etc.)	<ul style="list-style-type: none"> • US EPA - Consent Decree Powertrain et. al. (2013-2015) • California Air Resources Board - Woodsmoke Reduction Program (2018 - 2021) • District Funds
Partners (government/private organizations involved)	<ul style="list-style-type: none"> • City of Chico • US EPA • California Air Resources Board • Neighboring Air Districts

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Incentives Offered (rebates, discounts, vouchers, incentives for low income homes, etc.)	<ul style="list-style-type: none"> Local Retailers 2013-2015: \$1000 voucher for new woodstove. \$1750 voucher for new gas or pellet. Limited # of \$3000 low-income vouchers. 2018-2021: \$1000 voucher for new wood/gas/pellet stove. Up to \$5000 for low-income households or projects located in low-income communities.
Ordinances/Regulations (mandates for cleaner-burning hearth devices)	<ul style="list-style-type: none"> City of Chico approved an ordinance making curtailment mandatory (with exemptions) within city limits if Air District called a Check Before You Light Advisory. https://chico.ca.us/sites/main/files/file-attachments/3factsheet-webpage_0.pdf?1580153324 District Rule 207 - Wood Burning Devices regulates new installations: https://ww2.arb.ca.gov/sites/default/files/classic/technology-clearinghouse/rules/RuleID469.pdf
Project Yardstick (number of woodsheds constructed, number of stoves replaced with new stoves or other technology, etc.)	<ul style="list-style-type: none"> 858 Wood Burning Devices Replaced between 2005 and 2021.
Outreach/Marketing (radio/TV public service announcements, workshops, woodstoves expo, flyers, mailouts, social media)	<ul style="list-style-type: none"> TV Commercial for Check Before You Light: https://www.youtube.com/watch?v=29o54ab_IqU Sticky note on 1st Sunday Newspaper of November. District Publication: https://issuu.com/news_review/docs/cleanair_05042021_rbg_hires Check Before You Light website: https://bcagmd.org/check-before-you-light/
Air Quality Data/Other Results (current project area's air quality status and is improving indoor air quality part of project)	<ul style="list-style-type: none"> Butte County 24-hr PM2.5 NAAQS Redesignation Request: https://ww2.arb.ca.gov/resources/documents/2017-chico-cabutte-county-pm25-redesignation-request-and-maintenance-plan. Includes analysis of air quality improvements, change out program quantifications, and emissions inventory estimates.
Lessons Learned (What worked? What didn't? Tips? How can project be improved?)	<ul style="list-style-type: none"> Working with local retailers and neighboring Air Districts on a region-wide program had a decent amount of up-front work but made the program work smoother in the long run - especially for homeowners.

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	<ul style="list-style-type: none"> • It's helpful to balance the volume of change outs (to maximize emission reductions) with opportunities to fund change outs for low-income households (some households / neighborhoods won't see emission reductions without larger voucher incentive amounts). • Having a PM monitor capable of speciation was helpful, as it showed that wood-smoke was responsible for nonattainment and reduced concentrations of wood-smoke helped lead to attainment.
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