

CASE STUDY: PUGET SOUND CLEAN AIR AGENCY RESIDENTIAL WOOD SMOKE REDUCTION INITIATIVE

BURN BAN FINANCIAL ASSISTANCE *EX ANTE* PROGRAM ASSESSMENT

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PUGET SOUND CLEAN AIR AGENCY

- Tacoma-Pierce daily PM2.5 nonattainment area
 - Mostly urban, some rural (over 200,000 households)
 - Heavily impacted by wood smoke
 - Multiple public utilities
- 2011 community-based Stakeholder Process identified wood smoke strategies for state implementation plan
 - Increase/enhance enforcement of curtailment “burn ban” program
 - Removal of uncertified stoves (over 20,000 estimated in area)
 - 2012 Legislative and PSCAA rule changes
- 2012-2013 heating season
 - Increased enforcement through five interlocal patrols – we issued over 1,500 Notices of Violation
 - Incentive program removed almost **500 old stoves** (removal, replacement, and low income programs). This brings 5-year total to 1,700 old stoves removed.
 - Tremendous public outreach campaign – airsafepiercecounty.org, direct mail, media, radio, PIO workshop, community presentations, billboard, online and print advertising, text alerts

PSCAA'S 2012/2103 WOOD STOVE REPLACEMENT PROGRAM

Program	Number of households participating
Wood stove buy back	199
No-cost replacement – low income households	178
Point of sale discount (or full cost award lottery) – non-low income households	114
TOTALS:	491

PSCAA - A FEW QUESTIONS? (SUBSET OF MANY...)

- Could we do a public utility subsidy program during burn ban days?
 - We heard this repeatedly during public input sessions and comments
 - Heating costs also noted on some notice of violation responses
 - What would this entail? Who should be eligible? What could it look like?
- We have a low income incentive program, but what about low wage earners ?
 - Programs have shown us that people will “leave money on the table”...
- If state subsidy funding not available, what are financing options?
 - Currently have biennium funding
 - Many utilities offer 0% financing or third party referrals
 - Financing may be necessary in future, and potentially applicable to other areas

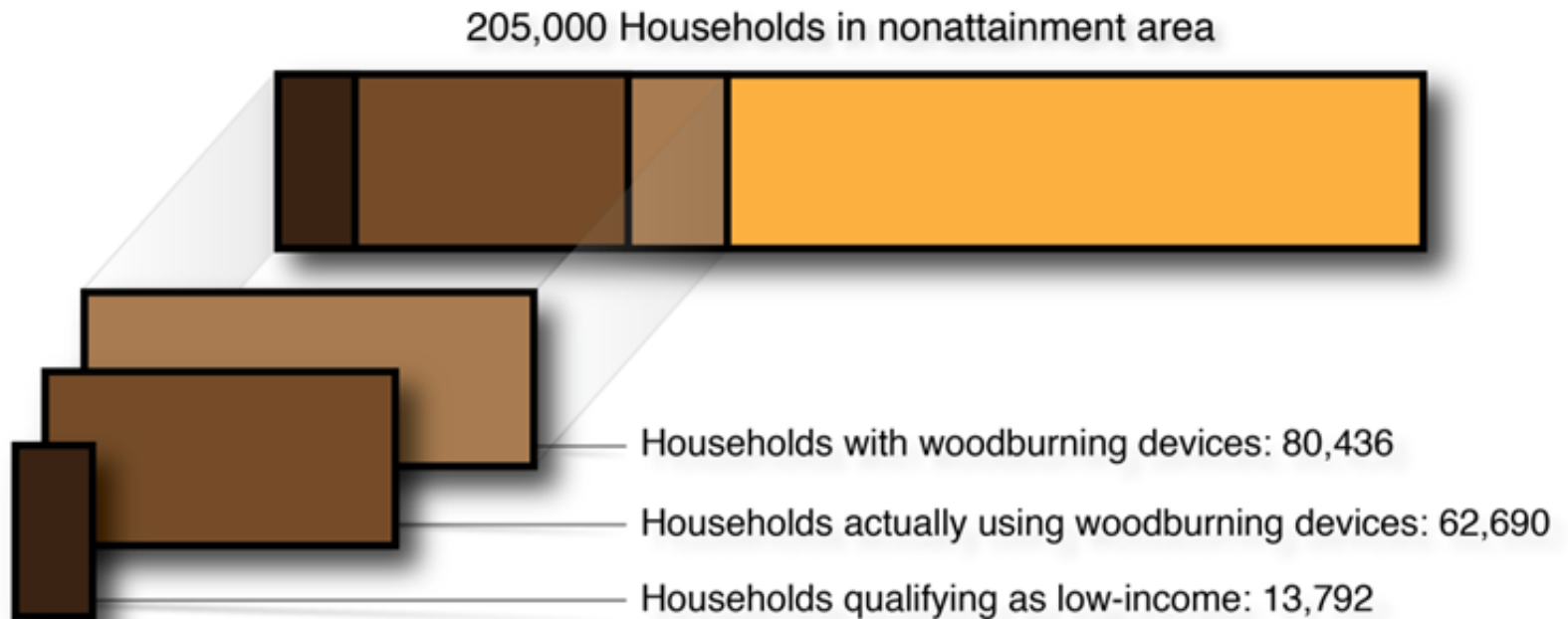
RESEARCH OBJECTIVES & METHODS

- **Identify potential burn ban assistance program models**
 - Key stakeholder conversations
 - In-person meetings and discussions
 - Discussions with PSCAA staff
 - Development of two program alternatives
- **Evaluate the financial viability of two potential programs**
 - Burn Ban Assistance On-Bill Utility Credit Program
 - Wood Stove Replacement Program for Low-Wage Earning Households
- **Additional Program Alternative**
 - Wood Stove Replacement Loan Program

EVALUATION CRITERIA

- The program must have the ability to assist the economically disadvantaged.
- The program must be able to be implemented during the 2013-2014 heating season.
- The program must have short term emission reduction benefits, but ultimately lead to long term changes in behavior and permanent reductions in fine particulates.

TARGET MARKET



UTILITY ON-BILL CREDIT PROGRAM

Incentivize the 13,792 low-income households that use a wood-burning device to instead use an alternative heating source during burn ban days.

PROGRAM SUMMARY - UTILITY ON-BILL CREDIT			
	Low	Historic	High
Number of burn ban days per year	6	14	23
Total households participating	2,620	2,620	2,620
Average annual cost	\$ 71,780	\$ 167,487	\$ 275,157
Total cost of program (2 years)	\$ 143,560	\$ 334,974	\$ 550,314
Average subsidy per household	\$ 42	\$ 98	\$ 162
Maximum possible average daily particulate reduction at 10% participation rate ($\mu\text{g}/\text{m}^3$)	0.73		

UTILITY ON-BILL CREDIT PROGRAM: CONCLUSIONS

- At 10% participation rate, program would not be sufficient to achieve attainment goals.
- Little is known about target population – potential to over distribute subsidy to ineligible households.
- May incent households who are already complying with burn ban.
- Expensive program with high administrative costs.
- Short term solution that does not help to change behaviors or help households comply with September 2015 mandate to remove all uncertified woodstoves.

WOOD STOVE REPLACEMENT PROGRAM FOR LOW-WAGE EARNING HOUSEHOLDS

- Targets “low-wage earning” household population (between 150% and 200% of the federal poverty line) – 1,907 households that may use a wood burning device.
- Offer grant to switch to more efficient alternative
 - Repair of an existing non-wood device (up to \$3,000)
 - Replacement of an uncertified wood device (up to \$5,000)

PROGRAM SUMMARY - WOOD STOVE REPLACEMENT GRANT	
Total households participating	764
Average annual cost	\$1,283,520
Total cost of program (3 years)	\$3,850,560
Average cost per household	\$5,040
Maximum possible average daily particulate reduction at 10% participation rate ($\mu\text{g}/\text{m}^3$)	0.43

WOOD STOVE REPLACEMENT PROGRAM: CONCLUSIONS

- Accomplishes long term goal of removing wood stoves
- Similar to existing Wood Stove Program (ease of set up)
- Targets a population currently underserved by weatherization and replacement programs
- Can be used in conjunction with other programs



ADDITIONAL PROGRAM CONSIDERATION

- Low-interest rate wood stove replacement loan program
- Craft3 existing programs
 - Home energy efficiency loans
 - Clean water loans
 - Rates range from 3.49% to 4.4%
 - Average loan size is \$12,500
- A wood stove replacement loan program could help ALL households meet 2015 compliance mandate



CONCLUSIONS AND RECOMMENDATIONS

- On-Bill Burn Ban Financial Assistance program provides temporary relief, but will not address long term behaviors and mandates.
- Low-wage Household Wood Stove Replacement program can accomplish goal of eliminating uncertified stoves and changing behaviors, but must be used in conjunction with other programs.
- Wood Stove Replacement Loan Program is worth considering as the September 15, 2015 mandate draws near.

PSCAA – TAKEAWAYS AND SUGGESTIONS

- Main takeaways from this exercise
 - Value in having “fresh eyes” explore programs
 - Implementing low-wage earner in 2013-2014 program
 - Stakeholders have high level of interest in these types of analyses and more
- Suggestions
 - Ideally, conduct this type of exercise after a few implementation seasons with better inputs
 - Better estimates of compliance rate and barriers to compliance would potentially lead to more conclusive results
 - Ideally, conduct analysis outside of burn ban season
 - EFC did all the work, but still some amount of staff time

QUESTIONS

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THANK YOU!

ASSUMPTIONS – BURN BAN SUBSIDY

- Number of households <150% FPL – 13,792
- Total cost per burn ban day (all heating sources) - \$96,869
- Program coverage (% of households participating) – 10%
- Cost per burn ban day (at 10% participation) - \$9,687
- Administrative costs – 30%
- Number of heating degree days (from 65) – 5,265
- Daily cost per burn ban day, per house:
 - Electric - \$7.99
 - Natural Gas - \$3.68
 - Oil - \$8.45
- Percent of households that use each type of heating source:
 - Electric – 73%
 - Natural Gas – 23%
 - Oil – 4%

ASSUMPTIONS –REPLACEMENT PROGRAM FOR LOW WAGE EARNERS

- Number of households between 150% and 200% FPL – 1,907
- Participation Rates:
 - Year 1 – 5%
 - Year 2 – 10%
 - Year 3 – 25%
- Administrative Costs – 20%
- Cost of replacement device - \$5,000
 - 60% of households will replace device
- Cost to repair device - \$3,000
 - 40% of households will repair device
- 100% of costs will be paid by grant