Fireplace Change Outs and You + Teaser on our Wood Smoke Study

Residential Wood Smoke Workshop - Nashville

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March 6-8, 2018
Trip Down Memory Lane
- Our PM 2.5 challenges
- Approach
- Results
Voucher Program (fireplace change out)
Lessons Learned & Changes Over Time
Next Steps
Wood Smoke Study Teaser
Wood smoke makes up 60% of the PM$_{2.5}$ emission inventory in Sacramento County on an average winter day.

What would it take to reach attainment?

Considered a number of options

- Started with voluntary no burn days
- All new installations required to be EPA certified post Oct 2007
- Mandatory wood burning curtailment (Check Before You Burn)
- Fireplace change out program
Trip Down Memory Lane - Results

24-hour PM$_{2.5}$ Design Value

Sacramento County Design Value

2012 Federal Standard
Began August 2008

Total projects
- Fireplace change outs: 6,303
- Total funding provided: $3,036,583

Low Income projects
- Fireplace change outs: 423
- Funding provided: $754,750

Environmental Justice versus Non-EJ
- EJ: 30% of changes, 43% of funding
- Non EJ: 70%, 57%
## Voucher Options & Funding Levels

<table>
<thead>
<tr>
<th>Replace Uncertified Stove/Insert with:</th>
<th>Funding</th>
<th>Low Income Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Stove</td>
<td>$450</td>
<td></td>
</tr>
<tr>
<td>Electric Stove</td>
<td>$300</td>
<td></td>
</tr>
<tr>
<td>Pellet Stove</td>
<td>$250</td>
<td></td>
</tr>
<tr>
<td>Wood Stove</td>
<td>$150</td>
<td></td>
</tr>
<tr>
<td>Replace Open Hearth with:</td>
<td></td>
<td>Up to $1500</td>
</tr>
<tr>
<td>Gas Stove</td>
<td>$450</td>
<td></td>
</tr>
<tr>
<td>Gas logs or electric stove</td>
<td>$300</td>
<td></td>
</tr>
<tr>
<td>Pellet Stove</td>
<td>$250</td>
<td></td>
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</table>

## Typical Cost Range

<table>
<thead>
<tr>
<th>Device Type</th>
<th>Low</th>
<th>High</th>
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<tbody>
<tr>
<td>Gas logs</td>
<td>$1,400</td>
<td>$2,000</td>
</tr>
<tr>
<td>Electric Inserts</td>
<td>$1,200</td>
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<tr>
<td>Gas Inserts</td>
<td>$1,600</td>
<td>$5,900</td>
</tr>
<tr>
<td>Pellet Stoves/Inserts</td>
<td>$3,700</td>
<td>$5,200</td>
</tr>
<tr>
<td>Wood Stoves/Inserts</td>
<td>$1,400</td>
<td>$4,000</td>
</tr>
</tbody>
</table>
Outreach Partners
- Community events
- Neighborhood newspapers
- Partnerships with other low income programs
- Retailers*

Changes Over Time
- Extra funding for EJ areas in earlier years
- No longer fund open hearth to wood insert
  - Concern of increased burn rate (more emissions)
In process of re-evaluating funding levels
- Low income funding level
- Potential change to categories of funding

New statewide funding - $5 million
- 1st year directed toward rural districts
- Future years may require alignment
- Variations on emission benefit calculations

Mitigation for land use projects
EPA Grant:

To gain a better understanding of air toxics from wood smoke, not just particles, along with wood burning behavior in Environmental Justice (EJ) and non-EJ communities.
What are the concentrations of air toxics?

To what degree does wood smoke versus traffic contribute to air toxics?

Are some communities disproportionately impacted by wood smoke than others?

Are there outreach efforts that could assist in reducing this toxics exposure?
Monitoring took place in six communities
- Three pairs
- EJ paired with non-EJ

Three types of project monitors
- Tier 1: Regulator sites
- Tier 2: Temporary community sites
- Tier 3: Temporary tripod sites
  (low cost sensors – Air Beams)
Summary of Results for Sacramento

1. Smoke from wood burning does not significantly contribute to air toxic concentrations
2. Fossil fuel-related pollutants were highest in EJ communities
3. Wood burning indicators were highest in our non-EJ communities
4. Phone surveys were consistent with measurements – more wood burning in non-EJ
5. Sensor to sensor, the low cost sensors performed/tracked well with each other
Study also provides:

1. Recommendations for outreach
2. Ideas on how to make our residents more aware of our programs - incentive and regulatory.
Thank You and Questions

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