

Residential Wood Burning A Montana Case Study

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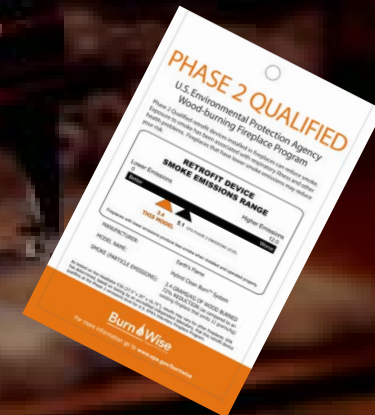


Montana

- Western mountain valleys are often subject to elevated concentrations of PM_{2.5}.
- Elevated PM_{2.5} concentrations often exceed and/or violate the primary health-based NAAQS for PM_{2.5}.
- State/Local programs and various regulatory strategies have been employed to address these issues.
- This case study will evaluate four local program strategies to demonstrate the need for clean residential wood heating devices.

Three pronged approach (E³)

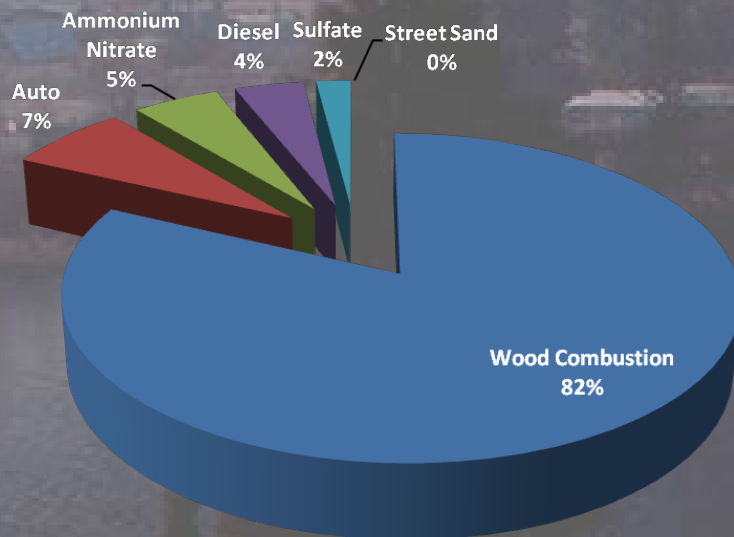
- Education/outreach
 - Cutting deadwood
 - Stacking/drying
 - Burning techniques
- Enforcement - Episodic Control/Regulation
 - Local episodic control programs – Restrictions
 - State
- Engineering/Technical Devices
 - *Clean wood burning devices*



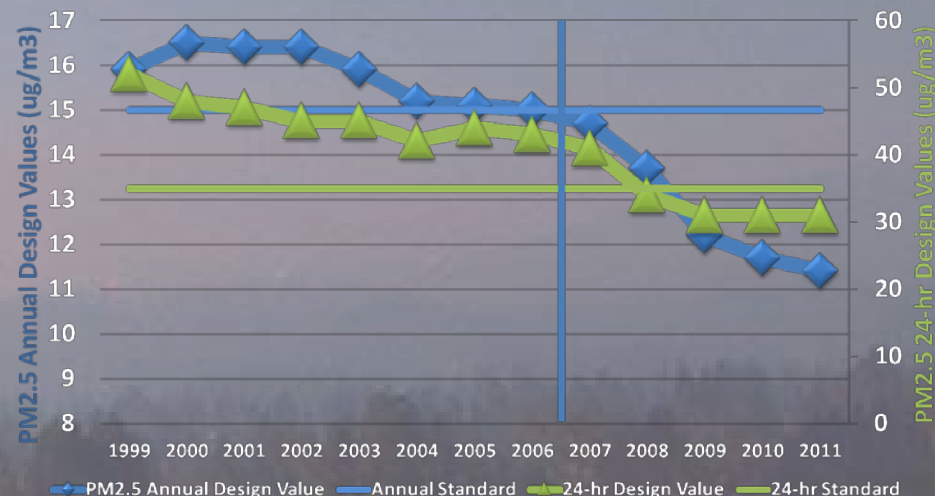
Lincoln Co. - Libby

- Small mountain valley town
 - Ideal topography for temperature inversions
 - No natural gas available
 - Culture of wood burning
 - Abundant fuel source
 - Low income

Lincoln County/Libby CMB 2003/04



Lincoln County/Libby PM2.5 Annual/24-hr Design Values

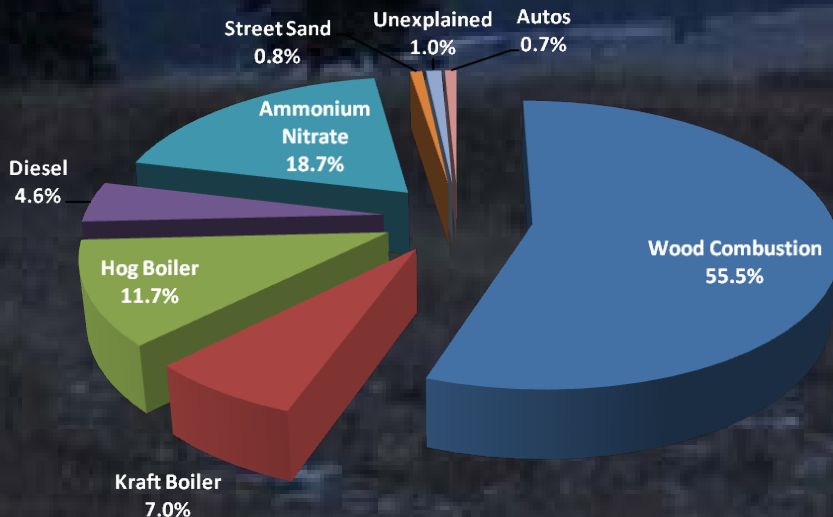


- Woodstove change out
 - \$2.7 Million to completely change out 1,130 wood stoves
 - HPBA, EPA, Lincoln Co., MT DEQ
- Clean wood stoves and an episodic control plan worked!
- Compliance with annual and 24-hr PM2.5 NAAQS

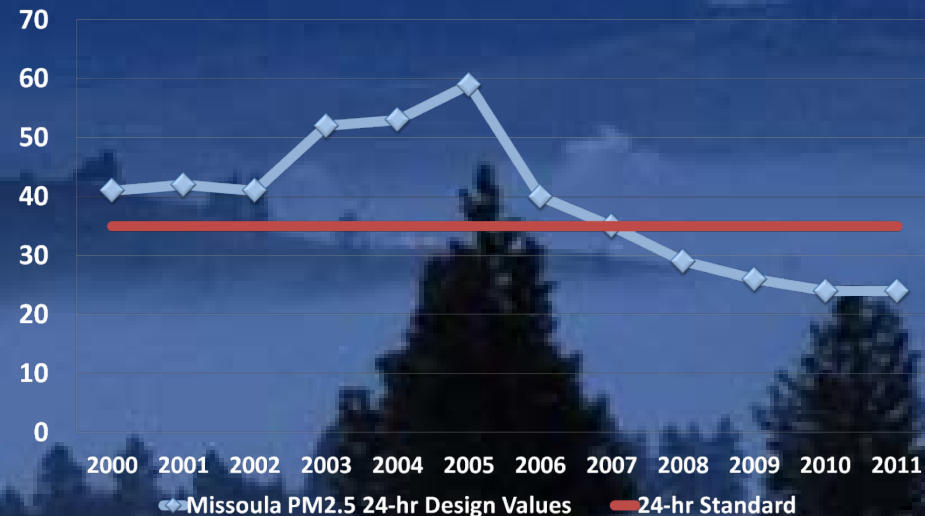
Missoula Co. - Missoula

- Larger Mountain Valley
 - Wintertime Inversions
 - Forest industry community
 - Culture of wood burning
 - Abundant fuel source
 - More complex airshed
 - Environmentally progressive

Missoula County/Missoula CMB
Winter 2006/07



Missoula PM2.5 Design Values 24-hr

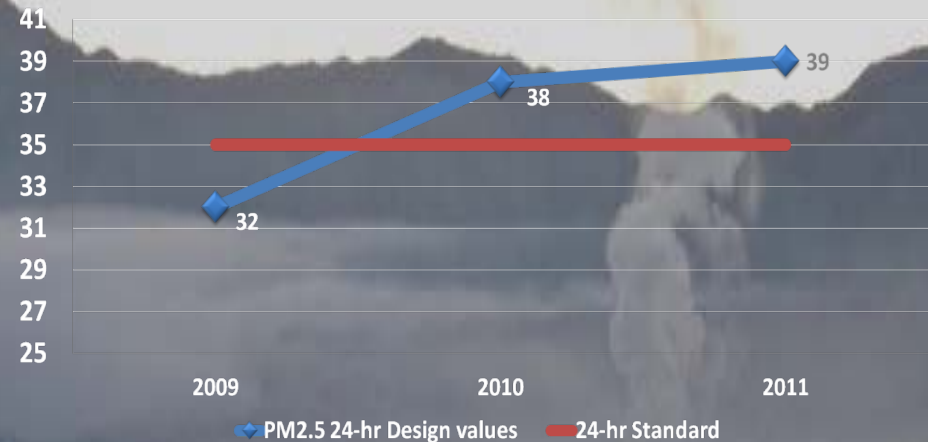


- Regulatory Framework
 - Only Pellet Stoves with less than 1.0 g/hr emissions can be installed (no wood stoves)
 - Home ownership changes requires removal of older stoves
 - No Funded change out program
- **Cleaner or fewer wood stoves and an episodic control plan worked!**
- Compliance with the annual and 24-hr PM2.5 NAAQS

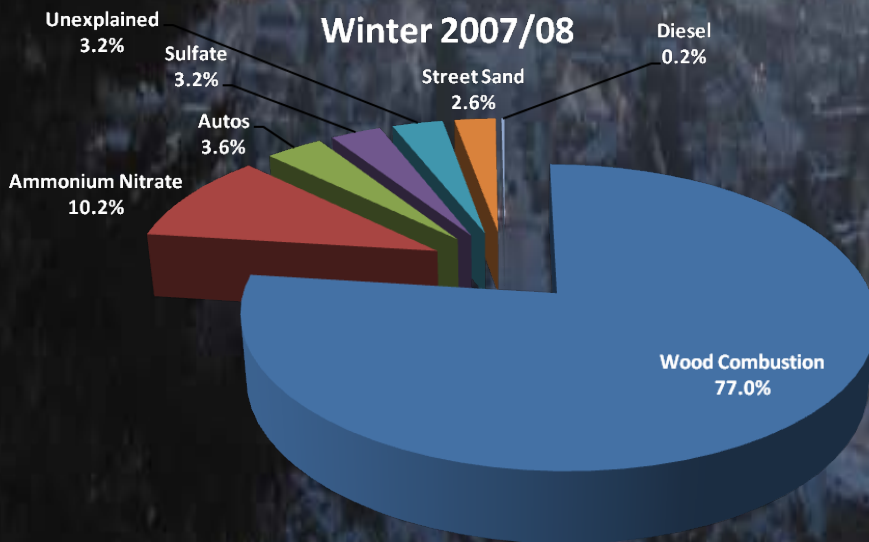
Silver Bow Co. - Butte

- Mountain Valley
 - Wintertime inversions
 - Culture of wood burning
 - Abundant fuel source
 - Complex airshed

Butte PM2.5 Design Values 24-hr



Butte Silver Bow CMB
Winter 2007/08

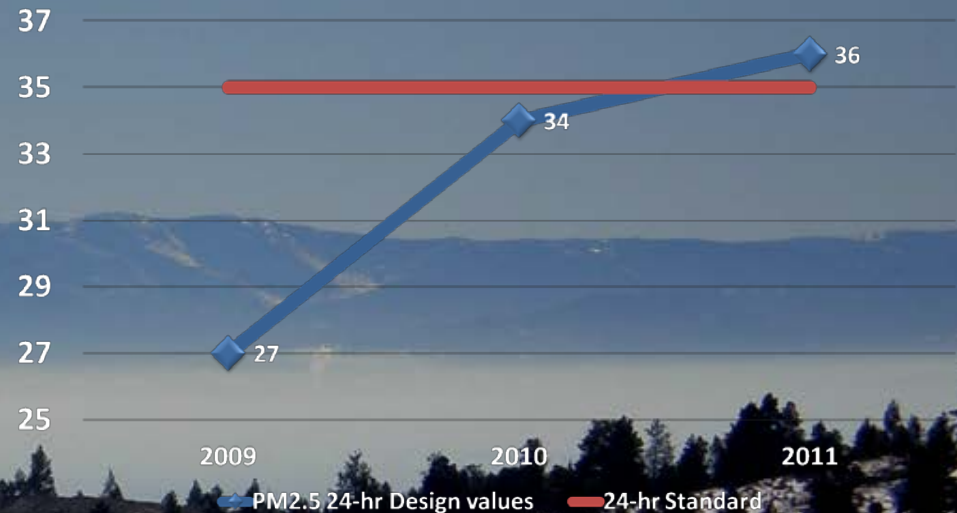


- Regulatory Framework
 - Local control program in process (early 2013).
 - Episodic control
 - Only EPA certified stoves may be installed in new or remodeled homes
 - No funded change out program
- Monitor indicating violation of the 24-hr PM_{2.5} NAAQS

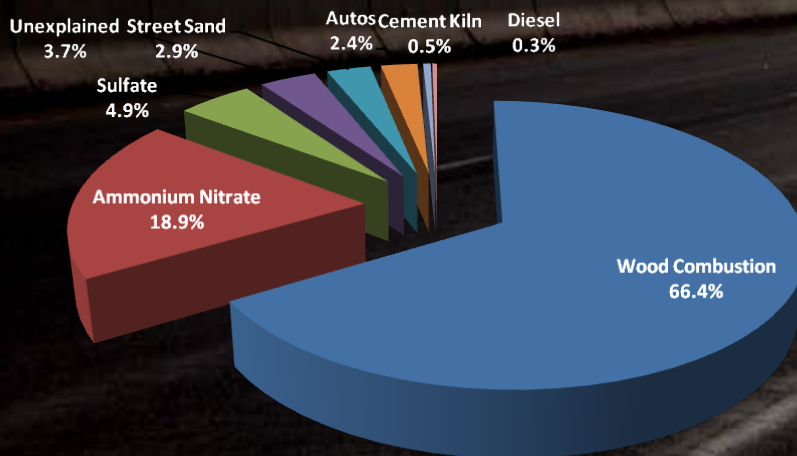
Lewis and Clark Co. - Helena

- Large Mountain Valley
 - Wintertime inversions
 - Culture of wood burning
 - Abundant fuel source
 - Complex airshed

Lewis & Clark Co./Helena PM2.5 Design Values 24-hr



Lewis and Clark County/Helena CMB
Winter 2007/08



- Regulatory Framework
 - New local control program
 - Episodic control
 - No funded change out program
- Monitor indicating violation of the 24-hr PM2.5 NAAQS

Summary

- Demonstrated that cleaner wood stoves are part of the solution.
 - Education, Enforcement, Engineering
- Clean Air Act (section 111) provides the mechanism needed to lessen impacts from this type of behavior.
- **Strong Residential Wood Burning Device NSPS**
 - Drive manufacturers' to create cleaner burning devices.

Questions???



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