



*Powerful Partnerships, Effective Solutions*



# How Changes in Clean Air Act Rules Will Affect Minnesota Businesses

**Bill Droessler**

Wednesday, February 25, 2015

Fredrikson & Byron

It's Like Déjà Vu All Over Again...



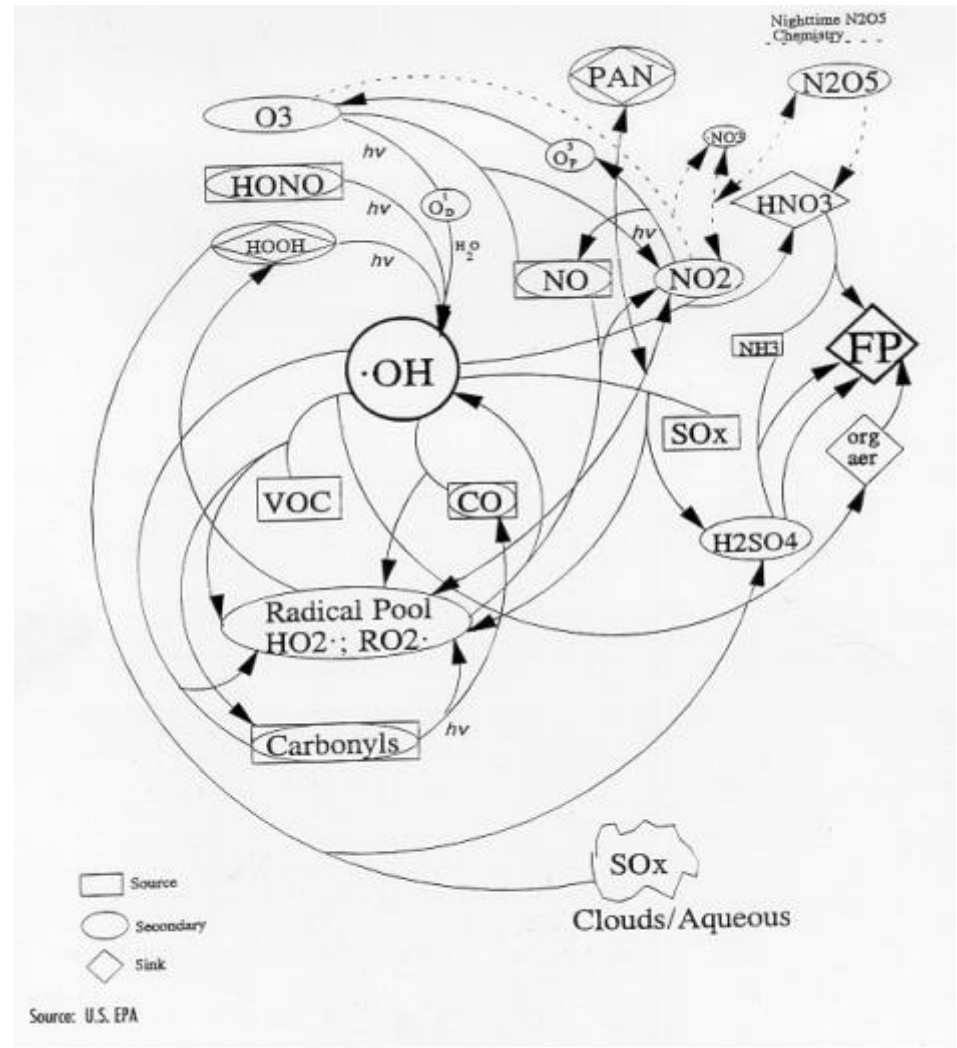


We **build partnerships** to develop collaborative solutions to Minnesota's environmental problems.



# Ozone Chemistry





























- OH radical is central ozone and secondary PM chemistry
- OH initiates reactions of VOCs (and CO) that produce radicals
- Radicals interact with NO<sub>x</sub> (NO and NO<sub>2</sub>) in sunlight to form ozone
- Conclusion: **ozone requires both NO<sub>x</sub> and VOC precursors**





From **smokestacks** to **tailpipes**. The greatest potential for future air pollution reductions will be from citizens, fleets, and small businesses.

# Primary Pollutants & Sources


Pollutants	Primary sources <sup>1</sup>	Potential health effects		
<b>Fine particles</b> directly emitted from combustion sources <sup>2</sup>	 36 %  16%  17%  13%  	Associated with serious health effects like heart attacks, acute and chronic bronchitis, asthma episodes, reduced lung function, and increased respiratory illness in young children. <sup>3</sup>		
<b>Fine particles</b> diesel exhaust	 48%  30%  10%	Aggravates allergies and asthma and can cause lung cancer with prolonged exposure		
<b>Nitrogen oxides</b> (ozone precursor)	 29%  25%  23 %  19%	Can worsen bronchitis, emphysema and asthma and increase risk of premature death from heart or lung disease <sup>4</sup>		
<b>Polycyclic aromatic hydrocarbons</b>	 38%  31%  15%	Some PAHs are carcinogens, can cause harm by direct inhalation and by uptake into the food chain		
<b>Dioxins and furans</b>	 57% <sup>5</sup>  26%	Potent carcinogens, cause the most harm by accumulating in meat, fish and dairy products. Especially harmful for pregnant women, nursing infants, children and the elderly.		

Clean Air Minnesota is a diverse group of people working to develop, fund, and implement **voluntary projects that reduce air pollution.**

# Clean Air Minnesota: Our Approach

- Play Nice in the Sandbox
- Share the Love
- Voluntary Efforts
- Shared Goal
- Measurement & Quantification
- Multiple Approaches





Clean Air Minnesota members have committed to reducing fine particulate matter (PM 2.5) and ozone precursor **emissions by 10%.**

# Clean Air Minnesota Priorities



**Air Alert Education  
& Outreach**



**Diesel Retrofits**



**Gas Can Exchange**



**Urban Forestry**



**Wood Smoke**



**Small Business  
VOC**



**Transit System**

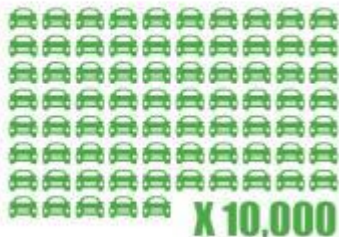
# Collaborative Successes: Project Green Fleet

## What We've Done

We can **reduce pollution** with cost-effective technology.



The pollution reduced is the equivalent of removing **750,000 cars** from the road.



**4,668 vehicles** in Minnesota have voluntarily been cleaned up.

**3,284**  
school buses 

**1,304**  
trucks 

**46**  
construction 

**30**  
fire engines 

**2**  
locomotives 

**2**  
boats 

## What's Next?



42 tons of particle pollution has been reduced annually, but to keep our air clean we need to **double our efforts.**

Help us keep Minnesota's air clean and reduce pollution from at least **100 more construction** vehicles and equipment.



**Become a sponsor** of Project Green Fleet at [www.projectgreenfleet.org](http://www.projectgreenfleet.org).

**Share this Message**

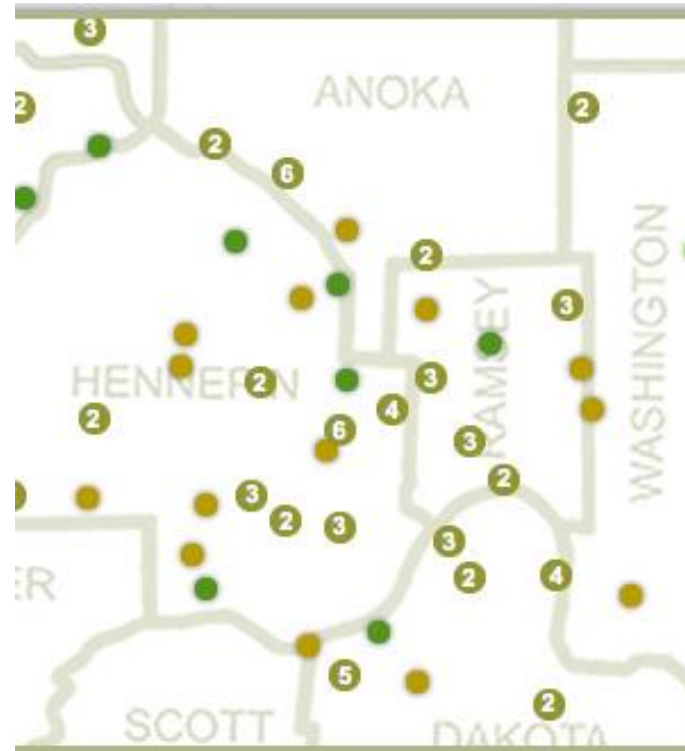
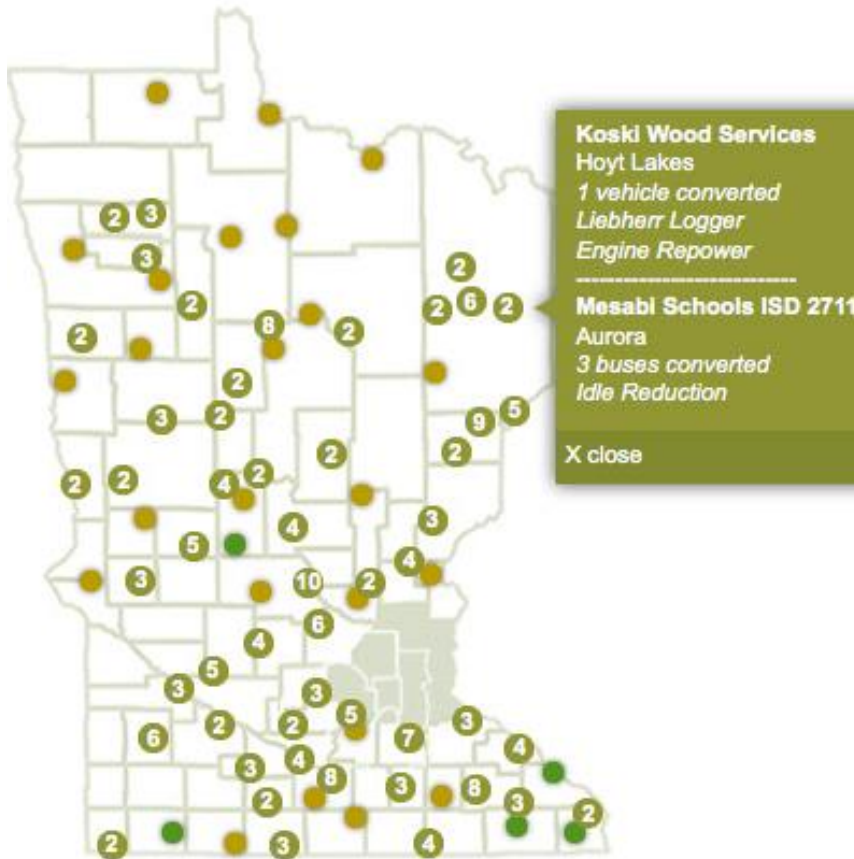


Environmental **INITIATIVE**

Minnesota Pollution Control Agency



# Collaborative Successes: Project Green Fleet





# Clean Air Minnesota: Challenges and Call to Action

- What, me worry? It's all above average in Minnesota, right?
- Chamber study; updated numbers and what they mean
- Project funding at scale; or, do it like other states
- Group dynamics



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