Air Quality in Oregon

Program
Pollutants
Monitoring
Current Issues

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- Chair Holvey and members of the committee, for the record my name is David Collier and I am DEQ's Air Quality Planning manager.
- With me is Sarah Armitage, our air toxics coordinator.

- I would like to start out today's presentation with this diagram. It illustrates the process we use to protect people from breathing harmful air pollution.

- In the middle of the circle is a box labeled "Standards"

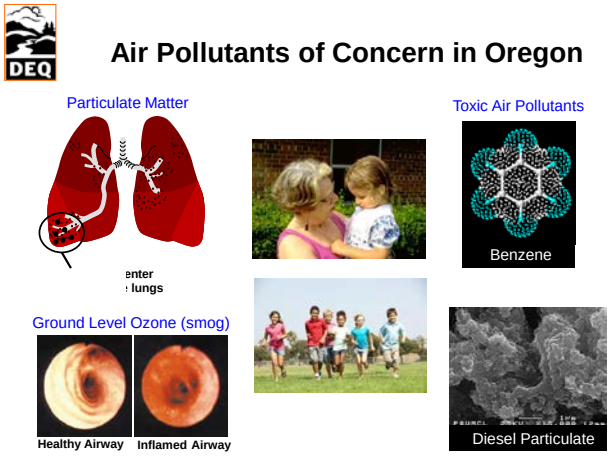
    - EPA sets national air quality standards for a number of common air pollutants such as particulate, ozone and carbon monoxide.
    - There are no national standards for a group of cancer causing pollutants known as toxic air pollutants, so DEQ worked with stakeholders and a science advisory committee to set benchmarks or goals for 52 toxic air pollutants.

- As the diagram indicates, to meet federal standards and state benchmarks and goals:
    - We monitor and assess the level of pollutants in the air
    - When monitored pollution levels indicate a problem, we develop emission reduction strategies
    - Then we implement the strategies through:
        - Regulatory activities and permits,
        - We assist businesses and individuals with compliance
        - And, when necessary, we perform compliance and enforcement activities.
    - I want to emphasize that at the same time that we strive to clean up the air, we also strive to maintain the ability of business and industry to locate and thrive in our communities.

- While DEQ's air quality program includes a broad range of responsibilities and activities including greenhouse gas reduction and ensuring the state's beautiful vistas remain visible, today we will focus on a few current issues including:

    - Monitoring and what it tells us,
    - The challenges of meeting and maintaining compliance with federal standards
    - And current efforts on air toxics.

- Just a note…DEQ is responsible for air quality in all parts of Oregon except for Lane County where Lane Regional Air Protection Agency has jurisdiction. However, DEQ provides oversight of the Lane County program.



- DEQ's goal is to achieve healthy air quality for all Oregonians.

- Air quality standards and goals are set to protect sensitive populations such as the elderly and children.

- Over the last 30 years, we have successfully controlled many air pollutants in Oregon. Right now, our greatest challenges are:
    - Reducing particulate concentrations to safe levels
    - Maintaining compliance with the federal ozone standard
    - And understanding and protecting people from toxic air pollutants such as benzene and diesel particulate.

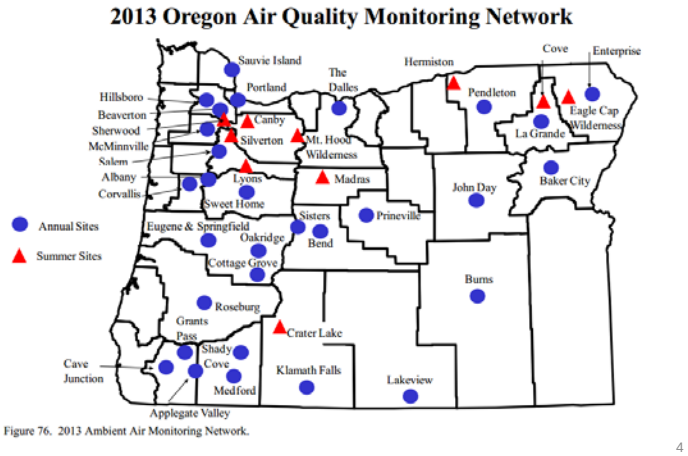
- Particulate matter can cause respiratory problems, heart disease, and cancer. Of most concern are the very fine particles that lodge deep in the lungs and can introduce toxins into the bloodstream.
    - The sources of particulate are wind-blown dust, diesel exhaust, wood burning, industry, forest and field burning.

- Ground-level ozone or smog can cause irritation of the nose, throat and lungs and can cause increased airway resistance and decreased efficiency of the respiratory system. The picture on the bottom left shows a healthy air way and a constricted airway.
    - The pollutants contributing to ozone formation come mainly from motor vehicles, solvent use, fuel evaporation and combustion.

- Toxic air pollutants are air pollutants known or suspected to cause serious health problems such as cancer.

- Some toxic air pollutants are particles while others are gases. They come from a wide variety of sources; including motor vehicles, home heating, manufacturing and commercial activities.

Assessing Air Quality



- This map shows the distribution of air monitoring locations statewide.

- Monitoring lets us know how a community's air quality compares with federal standards and air toxics benchmarks.

- We also use monitoring to inform communities about forest fire impacts, days when wood burning is not advised and pollutant levels that could cause problems for people with respiratory problems.

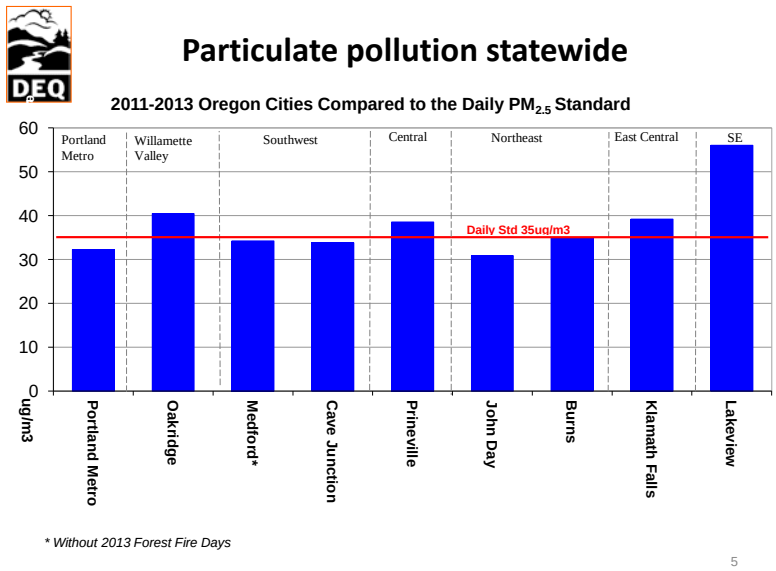
- DEQ operates about 45 air monitoring sites across the state. We can't monitor everywhere, so we also gather and analyze emissions information and use modeling to assess pollution levels and its impact on communities and neighborhoods.

- Some monitoring locations only measure single pollutants while others monitor a full spectrum of pollutants.

- In this map, the blue dots show annual sites or year round monitoring. Many of these sites are monitoring for particulates like smoke and soot.

- The red triangles represent summer sites where we monitor for pollutants that peak in the summer, such as ozone and particulate from forest fires and agricultural burning.

Backpocket:
Monitoring budget:
- 2015-2017 Governor's Budget for the AQ section of the Laboratory:
- 25.38 FTE
- Limitation $7.6 million
- Have federal grants that pay for the fine particulate monitoring network and 2 air toxics monitoring sites – Portland (North Roselawn) and LaGrande.

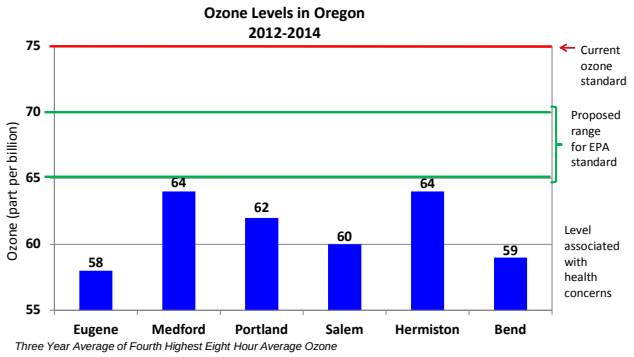


- As I mentioned in the last slide, monitoring lets us know how a community compares with federal standards.
- Federal standards are based on three year averages and this graph shows the three year averages of fine particulate monitored in Oregon communities violating or at risk of violating the standard.
- The red line shows the federal health standard.
- We have data for many other communities but these are the communities with the highest particulate levels.
- In the Portland Metro area, the column on the far left, Hillsboro has the highest particulate levels.
- You'll also note that Lakeview, the column on the far right, has the highest levels in Oregon for the 2011-2013 period.

BACKPOCKET NOTES:

- In 2011 and 2013 there were particularly bad weather inversions statewide with fewer winter storms and less wind.

Ozone pollution statewide



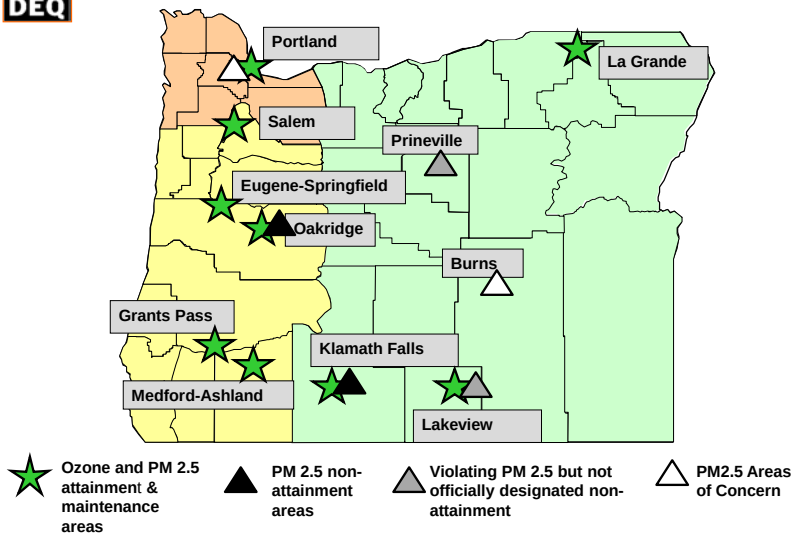
- This graph shows three year averages of ozone monitored in six Oregon communities with historically higher ozone levels.
- We are in compliance with the current ozone standard, the red line at 75 parts per billion.
- The green lines show the range that EPA recently proposed for a new more protective ozone standard.
- Their proposal is in response to scientific research which shows that exposure to lower levels of ozone air pollution is more harmful than previously thought.
- EPA is currently taking comments on the proposed range and plans to finalize a standard in October 2015.

BACK POCKET NOTES:

- Current ozone strategies in place in Portland and Medford are insurance for maintaining current levels. strategies include:
  - Clean cars
  - Vehicle inspection in Portland and Medford
  - Limiting emissions of solvents and volatile gases from permitted facilities
  - Limiting emissions from gasoline handling

- Why is ozone higher in Hermiston?
  - We do not yet know the reasons for Hermiston being so close to the proposed ozone range.
  - We have had monitoring data allowing comparison to the ozone standard for the last five years.
  - As with other locations, heat and low wind speeds promote ozone formation.
  - Higher levels in Hermiston often occur in the spring, so emissions from agricultural activities likely play a part. Other potential contributors are emissions from nearby rail and freight activities.

Progress Meeting Federal Air Standards



- Next we will move on to meeting federal standards.
- Since the 1980s DEQ has been working with communities statewide to restore air quality. When communities don't meet federal standards, the main concern is health, but violating federal standards also results in significant limitations to economic growth.
- It is important for public health and the economy for communities to quickly adopt workable emission reduction strategies and bring their community into compliance with federal standards.
- The green stars on this map show success stories – communities that violated federal standards, adopted emission reduction strategies and have come back into compliance with federal standards.
    - For example, Portland has plans in place that resulted in compliance with carbon monoxide and ozone standards.
    - Medford has plans in place for carbon monoxide and larger sized particulate known as PM 10.
- The black triangles represent current fine particulate or PM 2.5 non-attainment areas – Klamath Falls and Oakridge.
- The gray triangles represent areas that have violated the fine particulate standard, but have not yet been designated in non-attainment by EPA – Lakeview and Prineville.

- The white triangles show areas of concern for particulate pollution, where there have been recent levels above the standard, but the three year average does not reach the level for a violation – Hillsboro and Burns.

BACK POCKET NOTES:

- Plans in place:
  - Portland: carbon monoxide, ozone
  - Salem: carbon monoxide, ozone
  - Eugene – Springfield: particulate, carbon monoxide
  - Oakridge: particulate
  - Grants Pass: particulate, carbon monoxide
  - Medford-Ashland: particulate, carbon monoxide
  - Klamath Falls: particulate, carbon monoxide,
  - Lakeview: particulate
  - La Grande: particulate

Other communities around the state have worked hard and succeeded in reducing particulate pollution, however the geography and weather that contributed to original violations, continue to pose challenges as EPA has tightened standards.

The Legislature provides General Fund to DEQ for local government burning curtailment programs and public education. Approximately 82,000/year is split among the communities. For the past couple of years, DEQ receive some one-time federal funding ($24,000) that was provided a second year through a federal budget continuing resolution. DEQ split that funding between Klamath Falls and Lakeview to assist with their programs.

Community	2013-2014 Contract $ (Legislative approved GF)	Other additional funding	Final Contract Totals
Lakeview	$10,000.00	$7,000.00	**$17,000.00**
Jackson County	$15,000		**$15,000**
Josephine County	$10,000		**$10,000**
LRAPA	$19,228.50		**$19,228.50**
Klamath Falls	$28,000	$17,000	**$45,000**
TOTAL/Year	$82,228.50	$24,000.00	

Particulate Reduction Strategies

- Residential burning
  - Wood burning curtailment
  - Wood stove change outs
  - Heat Smart program
- Industrial emissions
  - Special control areas
- Prescribed and Agricultural Burning
  - Smoke Management Plan

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- When confronted with particulate emission problems, how do communities make reductions?
- The primary way is by decreasing smoke from residential burning.
- Statewide, the most effective strategy is operating a wood burning curtailment program, which requires residents to limit burning during wintertime inversions and air stagnation.
    - During those times, there are exceptions for low income residents who heat solely with wood.
- Another effective long-term strategy is to provide assistance for people to change out their old dirty woodstoves and replace them with cleaner certified woodstoves, pellet stoves or ductless heat pumps.
- This is an expensive strategy but over the years, DEQ has secured federal grants to fund change out programs.
- Statewide, the Heat Smart law requires removal of old, high polluting uncertified stoves from homes at the time of home sale and provides a gradual reduction of smoke as homes change ownership.
- Other strategies include:
- Controlling emissions from industrial sources
- Working with state and federal agencies on reducing smoke impacts from prescribed burning, open burning and field burning.

BACK POCKET NOTES:

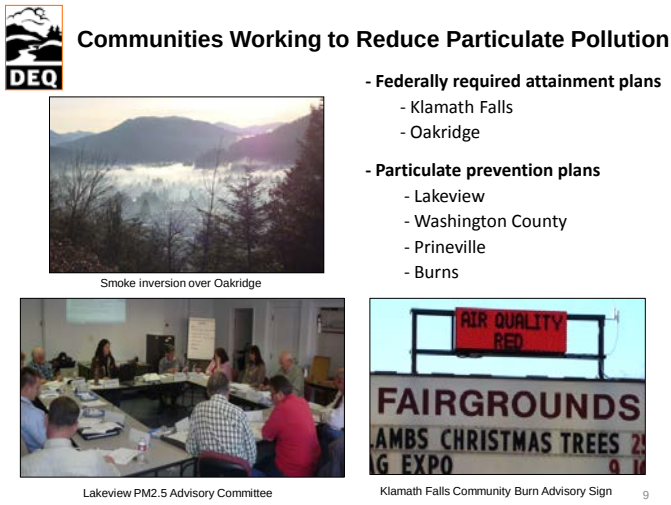
- In 2010 and 2011, American Recovery and Reconciliation funded grants totaling $2 million helped replac**e 695** old woodstoves with cleaner alternatives in:
    - Klamath Falls – 305 stoves
    - Lakeview – 103 stoves
    - Oakridge – 79 stoves
    - Eugene/Springfield/Cottage Grove – 138 stoves
    - Burns – 70 stoves
    -
- These programs have offered:
    - full rebates for low income residents that covers the full purchase price of a new heating device and installation costs
    - partial rebates towards the purchase of a new device

- Upcoming funding:
    - RST - $1.5 million - $750K for K. Falls and $750K for Lakeview-Beginning March 2015.
    - 2014 Jeld Wen SEP funding to K. Falls - $440K (in process)
    - 2013 Ashgrove SEP funding to Lakeview - $80K – replaced 25 stoves

- Since Heat Smart legislation requiring removal of old woodstoves was adopted in 2010, 761 woodstoves have been removed when homes were sold.

- Requirements on industry:
    - Reduce particulate emissions limits on how much PM2.5 a source can emit.
    - There can be certain requirements on industry in special control areas such as nonattainment or even maintenance areas.
    - Require industry to apply reasonably available control technology
    - Offsets – DEQ has provided a mechanism for industry to obtain offsets through funding woodstove change outs. This allows industry to obtain the offsets it needs while addressing one of the main contributors of PM2.5 in the area.

- Other burning partnerships:
    - DEQ has partnerships with the USFS/BLM to monitor for smoke impacts from prescribed burning and forest fires.
    - We work closely with these agencies to ensure smoke from these burning activities does not affect areas of concern (e.g. Klamath Falls, Lakeview, Hillsboro)
    - We work with the Dept of Ag and some county health departments by monitoring for field burning smoke impacts. – DEQ's works with local fire districts on open burning complaint response.
    - DEQ also coordinates field burning activities with ODA and wildfire and prescribed burns with ODF.



- When a community is faced with particulate pollution problems, DEQ works very closely with local governments and the community to figure out what measures work best for that community.
- Many communities have really taken the initiative to try and address particulate pollution and DEQ wants to acknowledge the hard work they have been putting in for many years.
- Klamath Falls is an example of a community that has been working hard to ensure the area will come into compliance.
    - A local advisory committee was key in developing an attainment plan with strategies to reduce pollution through woodstove reduction measures and education.
    - The county officials, including the health department have been critical in implementing a woodstove curtailment program, education and outreach efforts.
    - The health department conducts daily surveys during poor air quality days to identify people who might be burning, leave informational packets to residents to help educate them on proper burning techniques, and in some instances issue fines or penalties.
    - They also go into the schools to work with the kids to run a school flag program to identify poor air quality days.
    - The community has really come together to address the air quality issue.
    - The other communities identified on this slide have similar stories or are just beginning to work on emission reduction efforts.

- Next, we'll turn you attention to air toxics and Sarah Armitage will walk you through that section.

BACK POCKET NOTES:

- **Oakridge – LRAPA leads**
  - $415K in woodstove change out funds.
- **Lakeview -** violating the standard but not designated nonattainment
  - The community volunteered to participate in an EPA program to bring PM2.5 levels down – called EPA's PM Advance Program.
  - A local advisory committee developed a plan and with assistance from DEQ held a number of local meetings to help identify strategies that would work best for the community. This included a mandatory woodstove curtailment program and an open burn ban within the air quality zone.
  - Woodstove change outs have also been occurring:
  - 2010-2011 – ARRA funding of about $300K+ for low income full replacement and rebates
  - 2013 – SEP funds of $80K for change outs
  - 2013-2014 received part of the $270K funding from ODOE to conduct change outs and weatherizations
  - 2015 – will receive $750K from a regional solutions air quality project
  - Roughly 145 stoves changed out so far

- **Prineville -** violating standard but not designated nonattainment
  - DEQ is working with a local advisory committee to try and identify and address PM2.5 sources
  - Focus on educating the community about the problem

- **Burns**
  - Area is close to violating the standard
  - DEQ has been working with local officials, county judge, senior center to identify ways to lower emissions.
  - Received $252K in 2010-2011 (ARRA grant) to conduct changeouts. 70 stoves replaced
- **Washington County**
  - Area is close to violating the standard
  - DEQ is working with local officials and is part of an air quality task force to address PM2.5.

Air Toxics Monitoring

Air toxics monitoring equipment

Year-long assessments	Longer-term monitors
• Hillsboro • North Portland	• Portland • La Grande

Community air toxics assessment in North Portland

- Good morning Chair Holvey and members of the committee, for the record my name is Sarah Armitage and I am DEQ's Air Toxics Coordinator.

- As David mentioned, air toxics are the many chemicals which are known or suspected to cause serious health problems including cancer, nerve damage and respiratory irritation. I will talk a bit about our air toxics monitoring and our current efforts to reduce public health risk from air toxics.

- Because there are so many toxic air pollutants and monitoring is resource intensive, we have only four sites statewide. They include:

    - Two long-term trend sites funded by EPA – North Portland and La Grande. Portland monitoring gives us trends for an urban area and the LaGrande monitor shows levels typical of a small town.

        - The photo on the upper left shows air toxics monitoring equipment at the long-term site in North Portland.

    - We also operate two state-funded sites for year-long assessments where modeling shows there are likely higher concentrations of air toxics.
    - In the past, we have assessed Medford, Salem and Klamath Falls.
    - We are currently doing assessment monitoring in Hillsboro and North Portland close to Swan Island.

- The photo on the right shows the North Portland Swan Island monitoring project, which was funded by the 2014 Legislature for a year-long community monitoring assessment in this location.

- Monitors are shown by the yellow dots and weather monitoring stations are the blue dots. This project will help DEQ and partners understand air toxics in a dense urban

area. If the legislature continues funding in 2015-2017, DEQ will move this equipment to assess other communities.

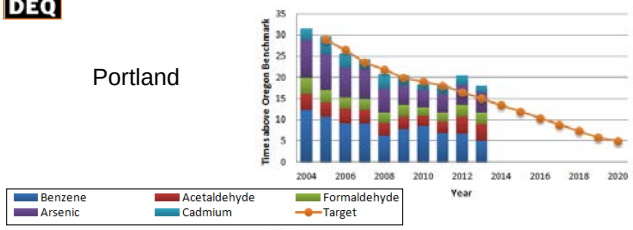
Backpocket notes:
For siting the next monitoring locations we are working on developing and prioritizing a list of locations around the state.

Last time we considered monitors, the Gresham East County area was highest on our list because it is growing and has not been monitored.

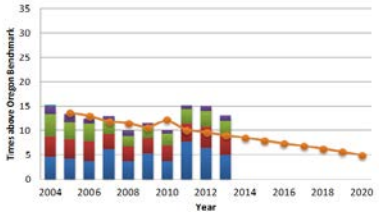
Other area: Oregon City/Clackamas.

Monitored Air Toxics Trends

Portland

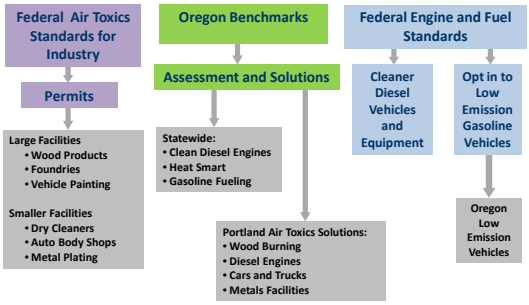


La Grande



- These charts provide an overview of air toxics monitoring data for five pollutants at our longer term monitors in Portland and LaGrande.
- The vertical axis is times above air toxics benchmarks or clean air goals.
- The five pollutants are stacked in bars for each year to show air toxics trends.
- The orange line and dots show our targets for air toxics reduction.
- In general, levels of air toxics are decreasing.
- You can see that levels of these five pollutants are about twice as high in Portland as they are in LaGrande.
- The resurgence in the economy and more vehicle and truck traffic is likely shows in the increased levels in the last couple of years.

Oregon's Air Toxics Program



- When air toxics monitoring shows a problem, we have three program areas that provide solutions.

- This chart shows the elements of Oregon's air toxics program.
  - In purple, we implement federal standards for industry through permits.
  - In green we use our air toxics benchmarks to assess problems and provide solutions statewide and in impacted communities.
  - In blue, we have progressively cleaner engines as EPA sets standards for new gasoline and diesel powered vehicles.

- Examples of our current actions to reduce air toxics are in gray boxes below.

- Implementing federal standards for industry has resulted in significant reductions of air toxics statewide for our largest facilities under Title V permits, and a spectrum of medium and smaller facilities under state permits.

  - Some examples of facilities where federal standards have required air toxics reductions are the larger wood products manufacturers, foundries and vehicle painting businesses.

  - In the past 5 years EPA air toxics standards have also applied to many medium and smaller facilities, requiring air toxics controls at dry cleaners, auto body shops and metal plating facilities.

  - DEQ partners with industry associations to provide technical assistance to hundreds of the smaller facilities each year.

- To supplement industrial and engine standards, DEQ uses a geographic approach to assess and solve problems in communities.
  - Portland Air Toxics Solutions is our first project working with a community to identify and make plans to reduce air toxics from sources causing the most risk. These include plans for wood burning, diesel engines, gasoline cars and trucks and metals facilities.

- We also consider actions to reduce air toxics emissions from sources statewide.
  - Examples of these actions are DEQ's Clean Diesel Program, providing incentives for cleaner engines, Heat Smart, which David described earlier, and our gasoline fueling regulations to capture benzene vapors.

- Under federal clean engine laws, both gasoline and diesel cars and trucks have gotten much cleaner – causing less ozone, particulate, green house gas and toxic air pollution.
  - Oregon accelerated this process by opting in to California low emission vehicle standards.

Backpocket:

Industrial permitting –

Title V program is an operating permit for **111 major sources of air emissions.**

Air Contaminant Discharge Permit (ACDP) program, which is the operating permit for about **2,600 medium and smaller sources**.

Clean Cars

Beginning with the 2009 model years, new vehicles sold in Oregon meet Oregon's Low Emission Vehicle standards. Reduces greenhouse gas emissions, smog forming emissions and toxic air pollution.

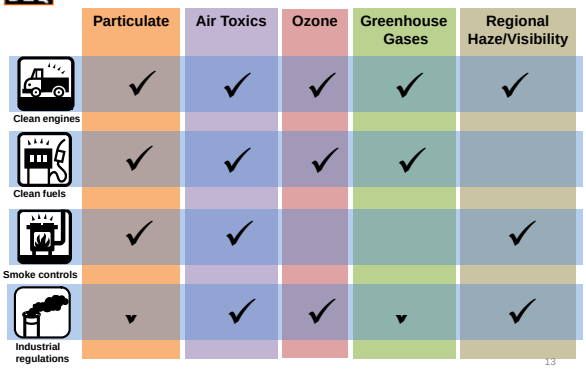
Clean diesel

Diesel is one of the most potent air toxics to which Oregonians are exposed.

Grant program that provides federal funds for the installation of particulate filters on existing vehicles. Since 2008, DEQ has awarded approximately **$4,250,000 in grant funding**.

We have upgraded **113 school buses**, **73 municipal vehicles** and **158 other vehicles** such as garbage trucks, buses and barges.

Multipollutant Opportunities



- We would like to conclude with some good news that much of our work has benefits for multiple pollutants.

- Traditionally we addressed one pollutant at a time, but now we think more in terms of multi pollutant benefits.

- On the left side of this chart are some of our key source control efforts, and across the top are the key pollutants we need to reduce.

- Because sources of air pollution emit multiple pollutants, our source control efforts are effective for multiple pollutants
  - For example: cleaner engines and cleaner fuels reduce particulate, air toxics, ozone, greenhouse gases, and pollutants affecting visibility
  - Woodsmoke reduction efforts control particulates, air toxics and pollutants affecting visibility.
  - Industrial controls in place statewide have benefits for all categories of pollutants as well.

- This concludes our information, thank you for your time, and we would be happy to answer any questions.