

# Tennessee Air Quality Update Current and Emerging Issues

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Commissioner

Tennessee Department of Environment & Conservation  
National Agricultural Air Quality Task Force Meeting  
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# Core Beliefs

- Economic growth and environmental protection are not mutually exclusive.
- Pollution prevention practices – particularly elimination of waste – save money.
- Committed to protecting environment and supporting regulatory community.
- Committed to working with stakeholders in a customer-friendly way to achieve compliance.

# NAAQS Process

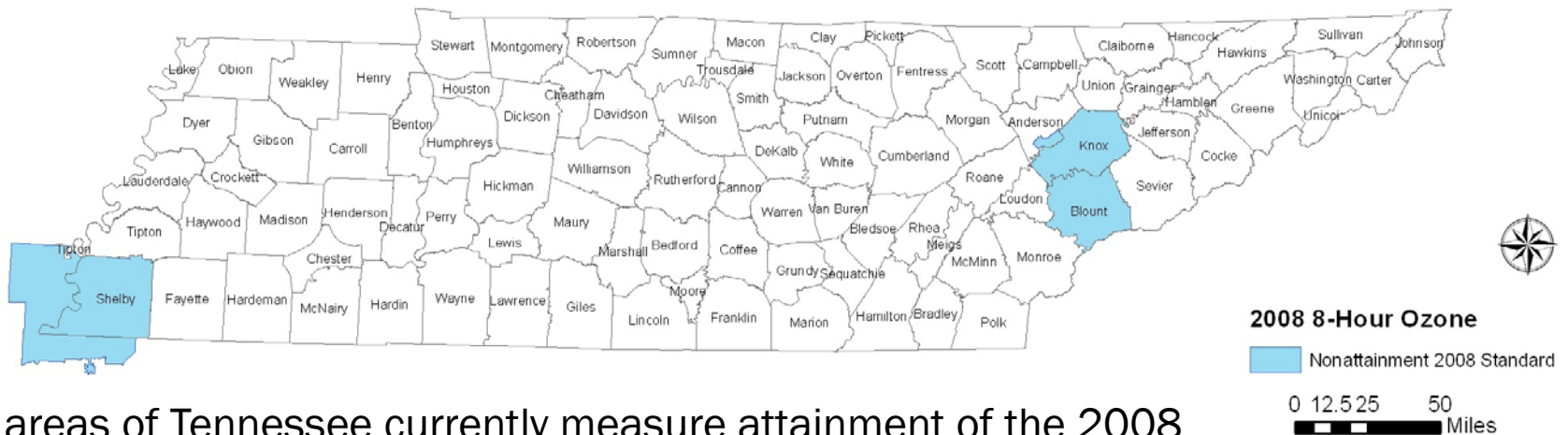
- **6 Criteria Pollutants:** Ozone, Particulate Matter (2.5 and 10), Sulfur Dioxide, Nitrogen Dioxide, Lead and Carbon Monoxide
- **National Standards**
- **State Implementation Plan (SIP)**
- **Non-attainment designation**
  - Air may not always be healthy to breathe
  - Emission or other procedural requirements may be made more stringent.

# Ozone and Particulate Matter

- Ozone is created by chemical reactions between oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOC) in the presence of sunlight
- PM<sub>2.5</sub> is primarily composed of sulfates, organic compounds and ammonia
- Overall, Ozone and PM<sub>2.5</sub> levels in Tennessee have been improving.

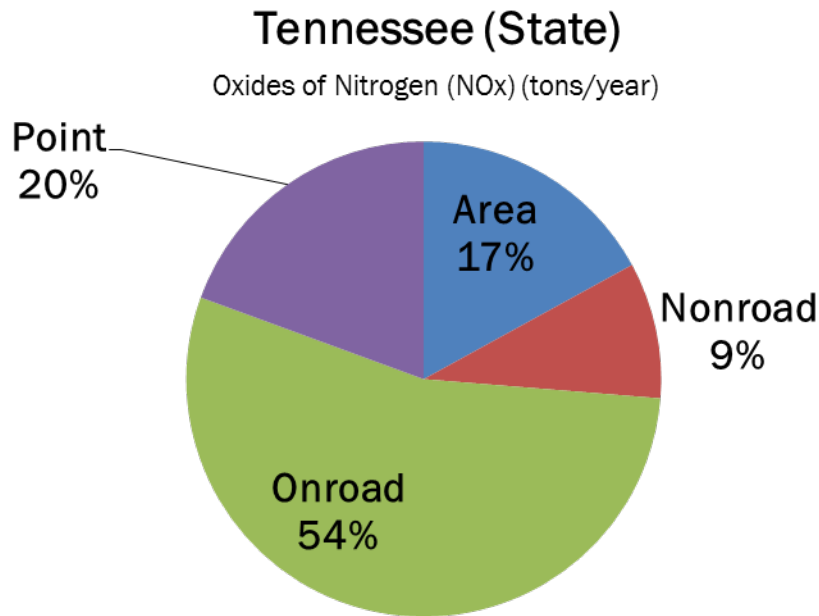
# Ozone

## *Air Quality Attainment and Nonattainment Areas, 2012 8-Hour Ozone 2008 Standard*

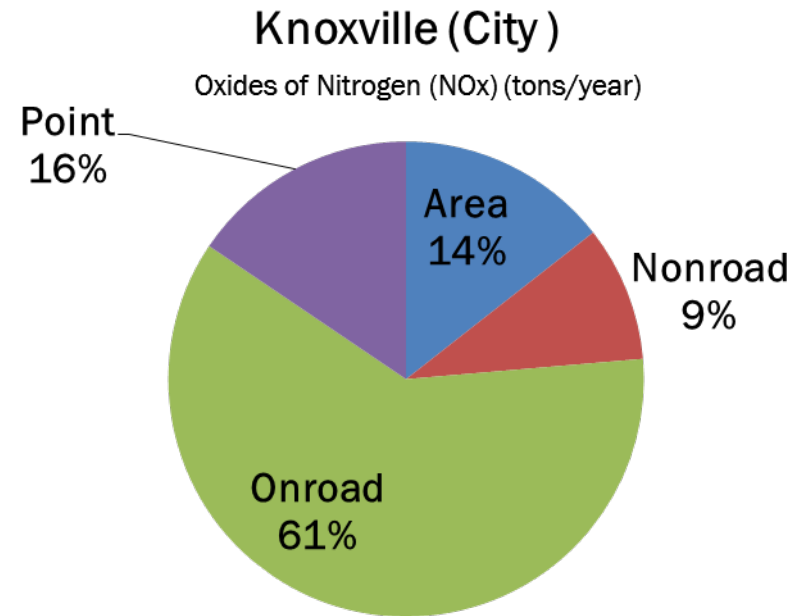


All areas of Tennessee currently measure attainment of the 2008 ozone standard (75ppb). The state of Tennessee filed a request for redesignation to attainment of the 2008 ozone NAAQS for the Greater Knoxville area on November 14, 2014. The Shelby County local air pollution control program is in the early stages of working with the states of Arkansas and Mississippi to prepare their redesignation to attainment request.

# Sector Contributions to Ozone (NOx)



Source: 2011 NEI



Source: 2011 NEI

Overall tons have been decreasing in TN. By sector, onroad sector has been increasing, while point source is falling in TN.

# New National Standard for Ozone?

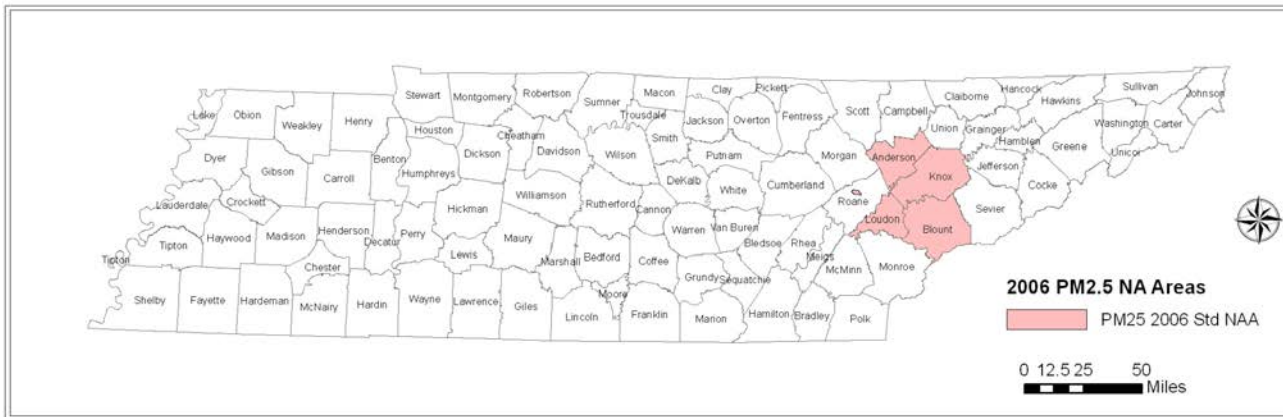
- **EPA proposing 65-70 ppb, open to 60ppb**
  - Primary Health Standard
  - Secondary Public Welfare Standard (trees, crops)
- **Comment period closed March 17, 2015**
- **Target for new standard is October 2015**
- **State Recommendation due to EPA by Oct. 2016 based on 2013-15 air quality data**
- **EPA final designations October 2017**
- **State SIPs due October 2018**

# Particulate Matter

**Air Quality Attainment and Nonattainment Areas, 2012**  
**1997 PM2.5 Annual Standard**



**2006 24 Hour PM2.5 Standard**



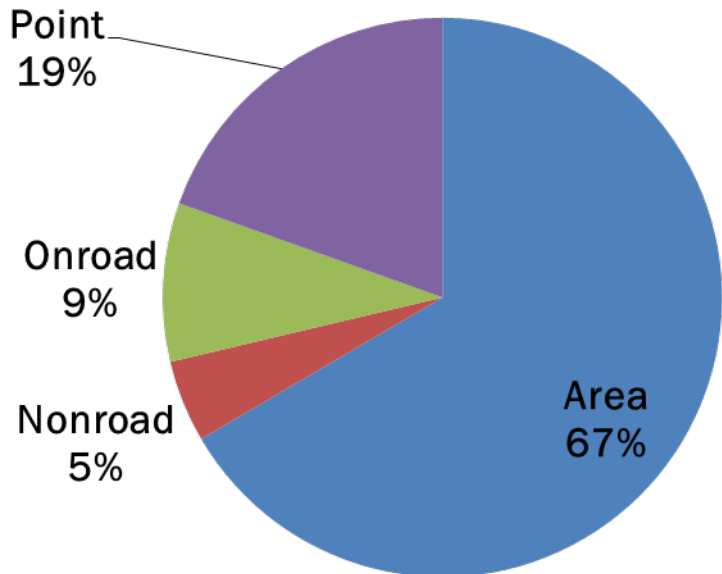
The Greater Knoxville Area is believed to be measuring attainment of both the 1997 Annual and 2006 Daily PM2.5 NAAQS. Chattanooga's Maintenance Plan and request to EPA to be redesignated to attainment of the 1997 standard was submitted to EPA in November 2014. GA & AL portions of the area have just been redesignated to attainment by EPA in December 2014.



# Sector Contributions to PM<sub>2.5</sub>

## Tennessee (State Overall)

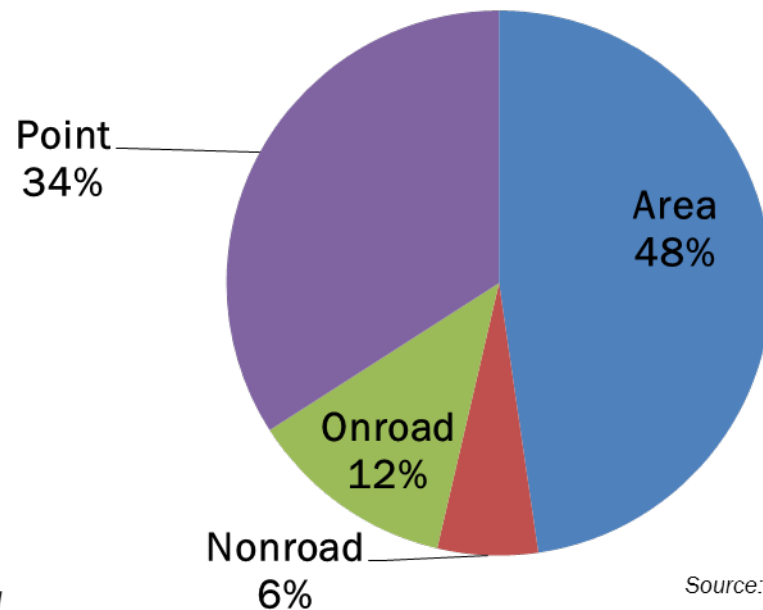
Fine Particulates (PM<sub>2.5</sub>) (tons/year)



Source: 2011 NEI

## Knoxville (City Example)

Fine Particulates (PM<sub>2.5</sub>) (tons/year)



Source: 2011 NEI

Overall tons have been decreasing in TN.  
By sector, Point Source is falling in TN.

# Greenhouse Gases

- Gases thought by EPA to be influencing climate change – not just carbon dioxide
- Carbon dioxide –  $\text{CO}_2$ , methane –  $\text{CH}_4$ , fluorinated gases & nitrous oxide  $\text{N}_2\text{O}$
- Being inventoried by federal requirement to track trends

# Clean Power Plan - Section 111(d)

- Using its authority under Section 111(d) of the Clean Air Act, EPA proposes a four building block “best system of emission reductions” for states to use in preparing their plan.
- States’ Approach to Plan Preparation
- Supreme Court Review

# Best System of Emission Reductions

Building Block for BSER	Strategy EPA Used to Calculate the State Goal	Examples of State Compliance Measures
1. Make fossil fuel-fired power plants more efficient	Efficiency Improvements	<ul style="list-style-type: none"> <li>• Efficiency improvements</li> <li>• Co-firing or switching to natural gas</li> <li>• Coal retirements</li> <li>• Retrofit CCS (e.g., WA Parish in Texas)</li> </ul>
2. Use lower-emitting power sources more	Dispatch changes to existing natural gas combined cycle (CC)	<ul style="list-style-type: none"> <li>• Dispatch changes to existing natural gas CC</li> </ul>
3. Build more zero or low-emitting energy sources	Renewable Energy Certain Nuclear	<ul style="list-style-type: none"> <li>• New Natural gas-fired Combined Cycle Units</li> <li>• Renewables</li> <li>• Nuclear (new and up-rates)</li> <li>• New coal with CCS</li> </ul>
4. Use electricity more efficiently	Demand-side energy efficiency programs	<ul style="list-style-type: none"> <li>• Demand-side energy efficiency programs</li> <li>• Transmission efficiency improvements</li> <li>• Energy storage</li> </ul>

\* States are not limited to the Building Blocks and have flexibility to determine how to meet their goal

# Tennessee: Home to Innovation



Tennessee is home to Nissan's North American Headquarters and their Smyrna production plants that make both the lithium-ion battery and finished LEAF assembly. Tennessee is proud to feature Nissan LEAFs in our state fleet and EV chargers at state parks across Tennessee.

# “Quietest Golf Course in the Nation”



*GolfDigest* recognized the Bear Trace golf course at Harrison Bay State Park outside Chattanooga with its prestigious 2014 Green Star Award and International Environmental Leaders in Golf Award for its use of electric equipment to save money, improve the golf experience and reduce environmental impacts.

# Questions, Ideas or Suggestions



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