

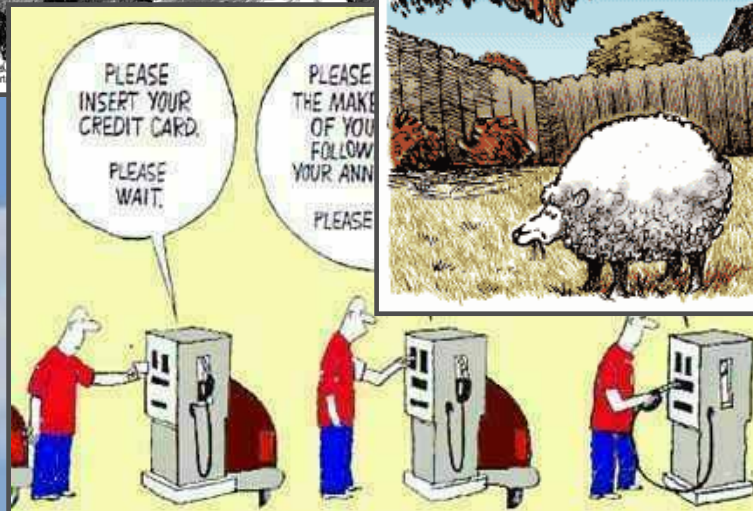
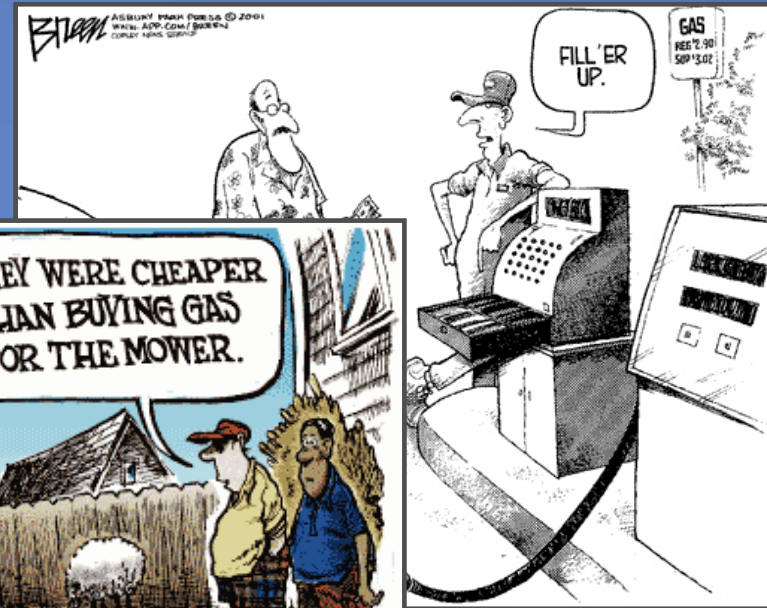


# The Air We Breathe

*Knoxville Regional Air Quality*

RCAC

# Gas prices – a laughing matter



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# Our Air Quality – not a laughing matter

In 2004, the EPA designated the Knoxville Region as a Non-Attainment area for:

- Ground-level Ozone – Counties of Anderson, Blount, Jefferson, Knox, Loudon, Sevier, and Cocke (portion within Great Smoky Mountains National Park)
- PM2.5 (Particle Pollution)– Counties of Anderson, Blount, Knox, Loudon, and Roane (partial)

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# Ground-level ozone and particle pollution – *Not For Consumption !*

- These pollutants can cause public health problems ranging from shortness of breath to heart attacks.
- Our region doesn't meet the national standards for these two pollutants - there are some days when the air is not healthy to breathe.

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# Who's doing something about this?

*Regional Clean Air Coalition (RCAC) was formed December 12, 2003 by 11 county mayors.*



**RCAC**

# What does RCAC do?

- Advise and educate government, business and industry, institutions, and the general public on air quality issues
- Promote coordination and communication about regional air quality actions
- Assist and advise local governments in determining, implementing, and administering voluntary and mandatory control measures to improve air quality

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# Why do we need clean air?

## Overall concerns with air quality:

- Economic – May hinder economic development and tourism
- Environment – Damages vegetation and visibility
- Health – Aggravates heart and lung diseases
- Stigma – Presents negative image of the Knoxville region

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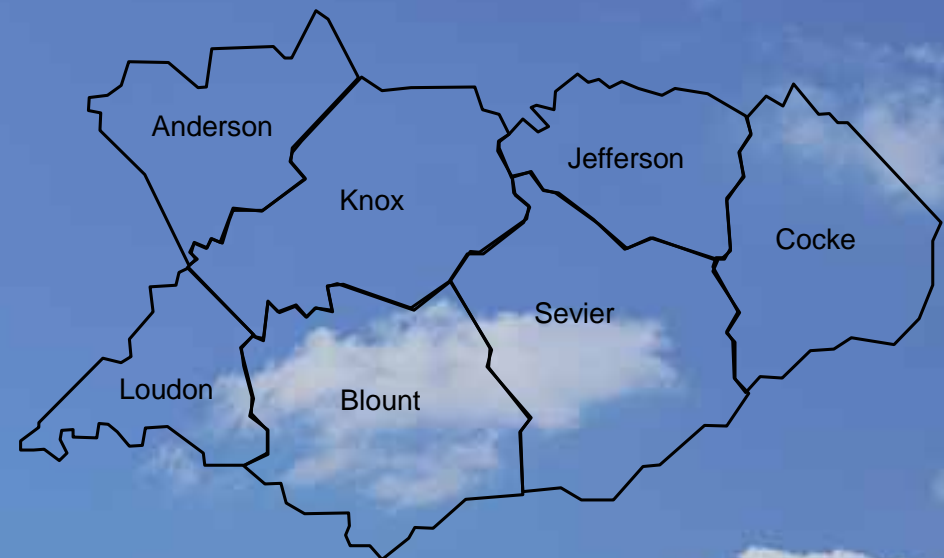
# Good vs. Bad Ozone

- *Good - Stratosphere*

10 to 30 miles above the Earth's surface, the stratospheric ozone layer protects us from harmful ultraviolet rays

- *Bad – Ground-level*

Near the Earth's surface, ground-level ozone can damage human health and vegetation



*6 counties and a portion of Cocke county are designated as Non-Attainment for Ozone.*

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# Recipe for Ground Level Ozone

Dish: Ozone Recipe Serves: East TN

Ingredients: Nitrogen Oxide (NOx), Volatile Organic Compounds (VOCs),  
Sunlight, Heat

**NOx + VOCs**

**+**

**Sunlight + heat**

**=**

**Ozone**

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# Ozone Pollution: It Doesn't Do a Body Good



Certain groups are more apt to feel the affects of Ozone pollution:

- Children who are more active outdoors
- Adults who work or exercise vigorously outdoors
- People with respiratory diseases such as asthma or emphysema

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# Other Damages from Ozone

- **Crop Production:** Ground-level ozone interferes with a plants ability to produce and store food. Crops are susceptible to damage from insects, harsh weather, and other pollutants. Annual crop damage from ozone is estimated at \$500 million in the U.S.
- **Vegetation:** Ozone damages foliage of trees and plants, harming forests in National parks

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# Local Sources of Ozone-forming pollutants

1999 NO <sub>x</sub> Emissions in Knoxville Non-Attainment Area (tons per day)	
Source	Percent
Electric Utilities	17.0
Industrial Combustion	9.4
Other Combustion	5.5
Other Industrial Processes	4.7
On-Road Vehicles	49.3
Off-Road Vehicles	13.5
Other Sources	0.6

Almost ½ of our  
Ozone-forming  
emissions comes  
from the vehicles  
we drive.

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# Ozone Deadline

- Our plan to reach attainment must be submitted to EPA by June 2007
- Non-Attainment counties must be in attainment by June 2009

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# Particle Pollution: Tiny Ingredients, Big Problems

- Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. PM2.5 refers to particulate matter that is 2.5 micrometers in diameter, or smaller. It is a 60<sup>th</sup> of the width of a human hair.

*5 counties are designated as Non-Attainment for PM2.5.*



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# Particle Pollution: Not Heart Healthy

- Associated with serious health effects
  - aggravated asthma
  - increases in respiratory symptoms like coughing and difficult or painful breathing
  - chronic bronchitis
  - decreased lung function
  - premature death
- Associated with increased hospital admissions and emergency room visits for people with heart and lung disease
- Associated with work and school absences

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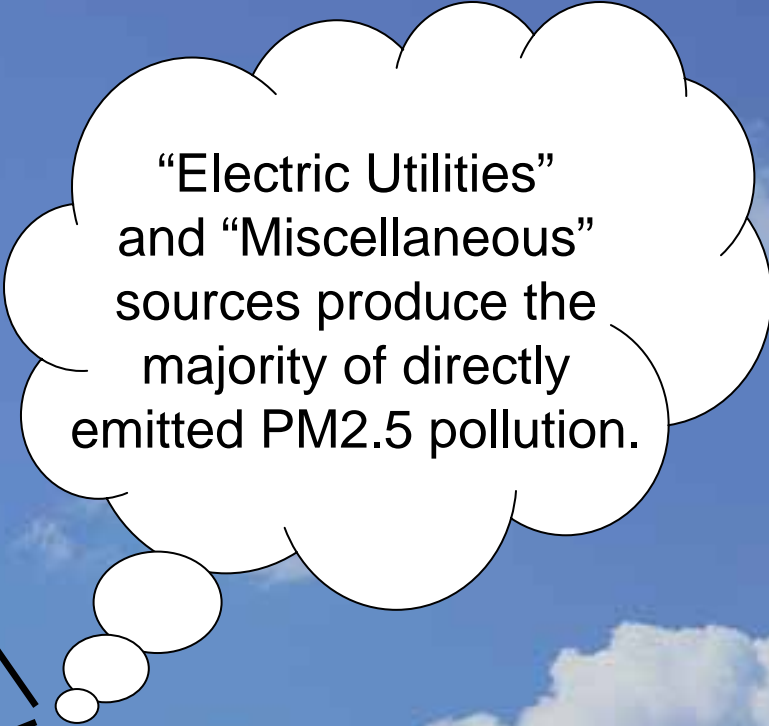
# Particle Pollution: Not Earth Healthy

- Major source of haze that reduces visibility in many parts of the United States, including our National Parks
- Settles on soil and water and harms the environment by changing the nutrient and chemical balance
- Causes erosion and staining of structures including culturally important objects such as monuments and statues

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# Local Sources of PM2.5

PM2.5 Emissions for Knoxville Non-Attainment Area	
Source	Percent
Electric Utilities	31.6
Other Combustion	9.6
Waste Disposal and Recycling	10.6
On-Road Vehicles	3.4
Off-Road Vehicles	3.1
Miscellaneous (includes Manufacturing sources)	41.7



“Electric Utilities” and “Miscellaneous” sources produce the majority of directly emitted PM2.5 pollution.

# PM2.5 Deadline

- Our plan to reach attainment must be submitted to EPA by February 2008
- Non-Attainment counties must be in attainment by April 2010

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# RCAC Supported Measures

- Statewide anti-idling legislation for trucks
- Reduction of speed limits to 55 mph for trucks and 65 mph for passenger vehicles on the interstate system throughout the non-attainment area
- Prohibit open burning as needed on air quality action days
- Truck stop electrification
- Use of hybrid vehicles as some replacements for fleets
- Participation in the Smart Trips program, an alternative transportation program
- Free bus rides on KAT buses on Air Quality Action Days
- Use of alternative fuels such as biodiesel

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# Action Days: It's a Warning Label

Air Quality	Protect Your Health
Good	No health impacts are expected when air quality is in this range.
Moderate	Unusually sensitive people should consider limiting prolonged outdoor exertion.
Unhealthy for Sensitive Groups	Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor exertion.
Unhealthy	Active children and adults, and people with respiratory disease, such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.

- Protect yourself and your family from the harmful effects of air pollution by paying attention to air quality forecasts on local weather reports and on our website at [www.etnrcac.org](http://www.etnrcac.org)
- Limit your outdoor activities when an Air Quality Action Day has been declared
- Be aware of respiratory symptoms, especially in children, the elderly and those with heart or lung conditions

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# What can you do?

## **Actions you can take to improve regional air quality**

- Conserve energy – change the setting on your thermostat and consider use of fewer lights
- Keep your car, boat, and other engines properly tuned
- Trip chaining – combine errands to reduce vehicle miles traveled
- Carpool or use public transportation
- Reduce fireplace and wood stove use
- Do not burn leaves, trash, and other materials
- If possible, work at home
- Don't idle your vehicle – turn it off if you're waiting for more than a minute
- Refuel after 6 p.m. and don't top off the tank
- Use gasoline-powered lawn equipment after 6 p.m.
- Avoid driving in peak hours
- Drive the speed limit

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# How do we get better Air Quality?

Clean it Up! It All Adds Up!

- Reduce your driving
- Be aware of Air Quality Action Days and steps
- Support local companies and governments that are working towards cleaner air

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# For more information...

- Regional Clean Air Coalition
  - [www.etnrcac.org](http://www.etnrcac.org)
- TN Dept. of Environment and Conservation
  - [www.tdec.net](http://www.tdec.net)
- National Park Service
  - [www2.nature.nps.gov/air/WebCams/parks/grsmcam/grsmcam.cfm](http://www2.nature.nps.gov/air/WebCams/parks/grsmcam/grsmcam.cfm)
- EPA
  - [www.epa.gov/oar](http://www.epa.gov/oar)
  - [www.italladdsup.gov](http://www.italladdsup.gov)

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