EPA REVISED NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) FOR OZONE 2008

LAFAYETTE, LOUISIANA OCTOBER 16, 2008

Getting Started

- Staff Introductions
- Why the Steering Committee was formed
- Committee Membership
- Purpose of this meeting
- Meeting Format
- Introduction of Panel Members

Introduction

- Why are we here?
  - What is ozone and how does it form?
  - The Clean Air Act: How does it protect your health?
- What is the new ozone standard and how does it affect Louisiana?
  - What are monitors and what do they tell us?
  - What are the impacts of the new standard? Timeline?
- What are the next steps?
  - Control strategies and solutions both State & Federal
  - Voluntary Measures

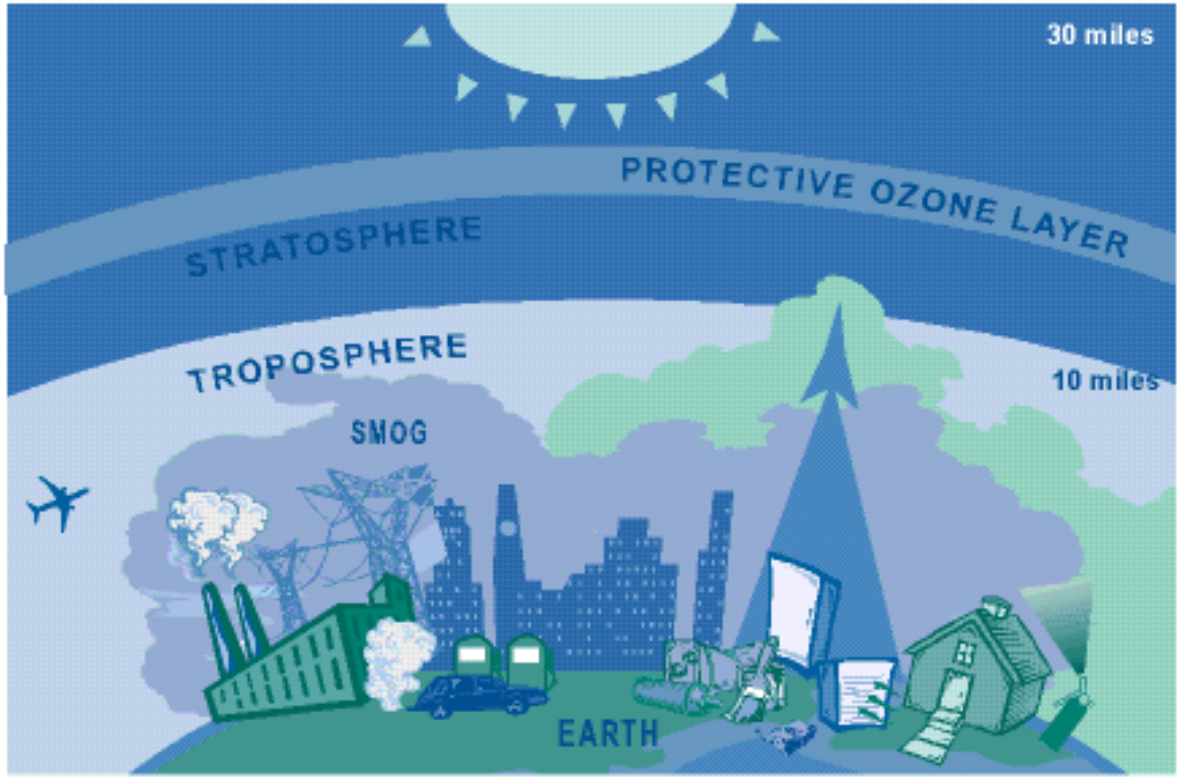
Why are we here?

- Statewide Ozone Steering Committee was initiated in April 2008 to assist potential new ozone nonattainment areas with Clean Air Act requirements;
- Composed of representatives from business and industry associations, several state agencies, city/parish governments and environmental groups;
- The committee has no official authority but does have the ability to recommend ideas to the governor.

What is Ozone ?

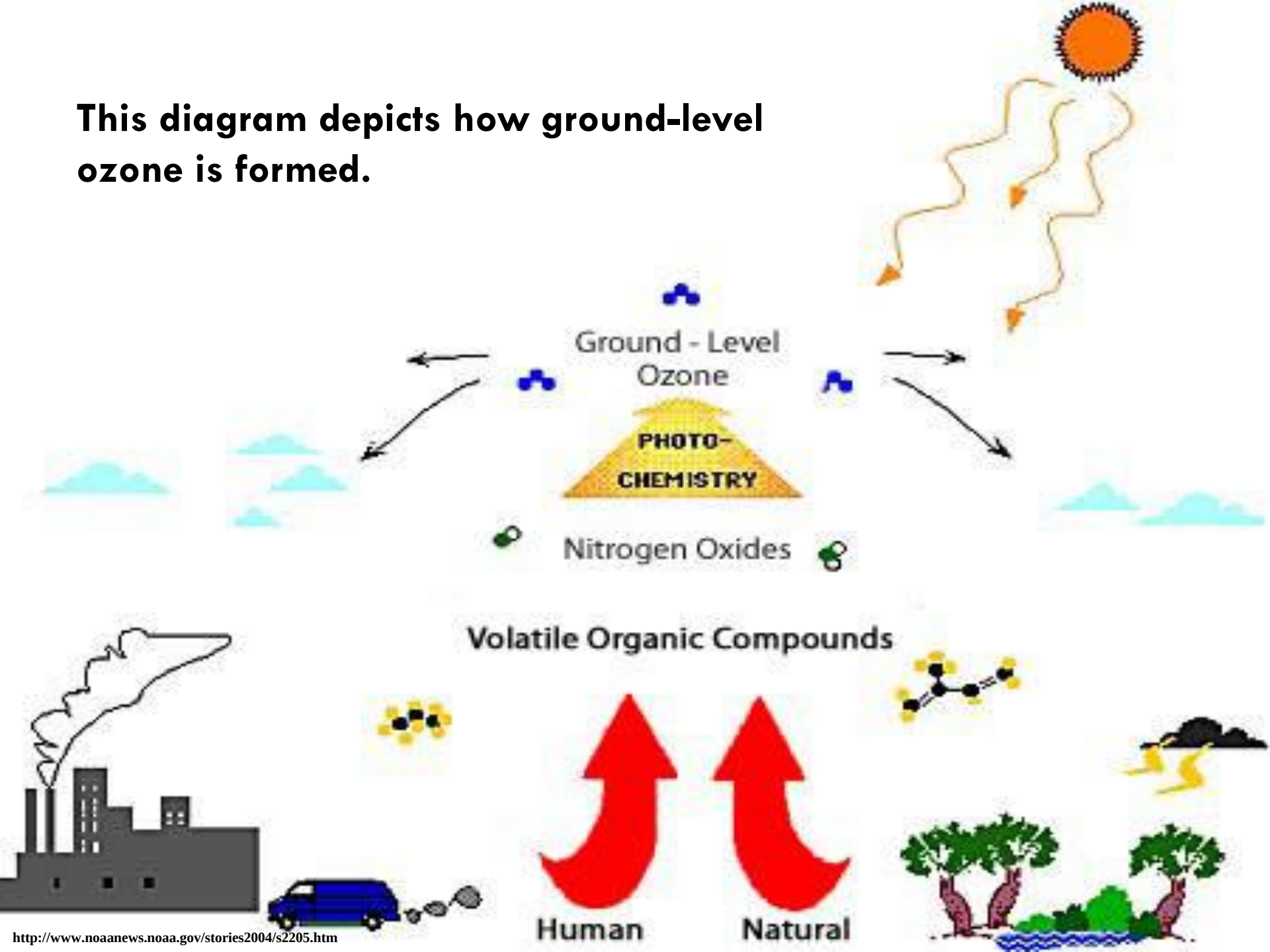
- Ozone is commonly referred to as smog.
- It is not emitted, but forms in the atmosphere under certain conditions
- Volatile Organic Compounds (VOC) + Nitrogen Oxides (NOx) + Sunlight = Ozone
- In other words, emissions from industry + cars + human activities + nature + sunshine = ozone

Ozone: Good up high, Bad near by

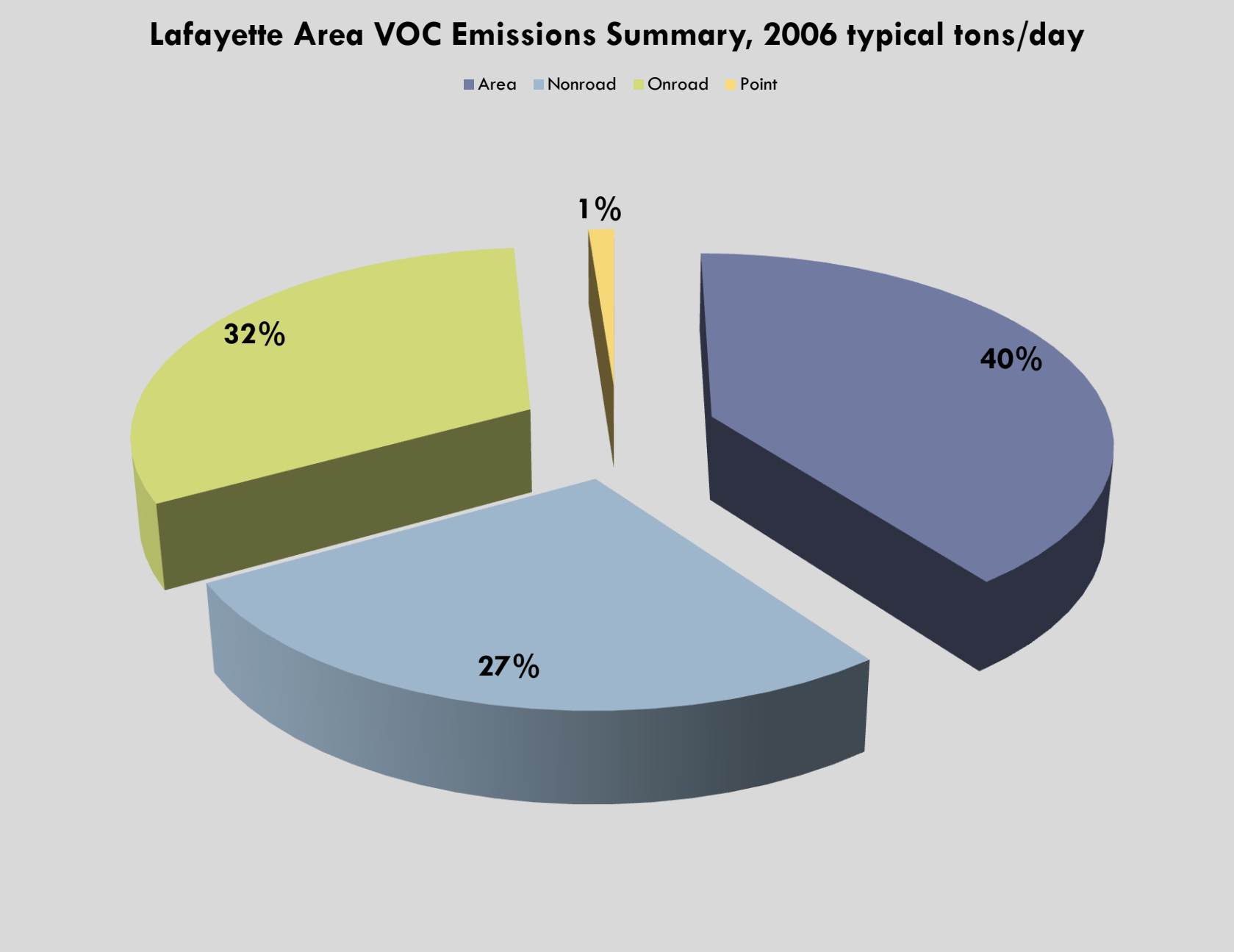


In the stratosphere, ozone protects us from the sun's harmful ultraviolet rays, but turns to smog in the troposphere.

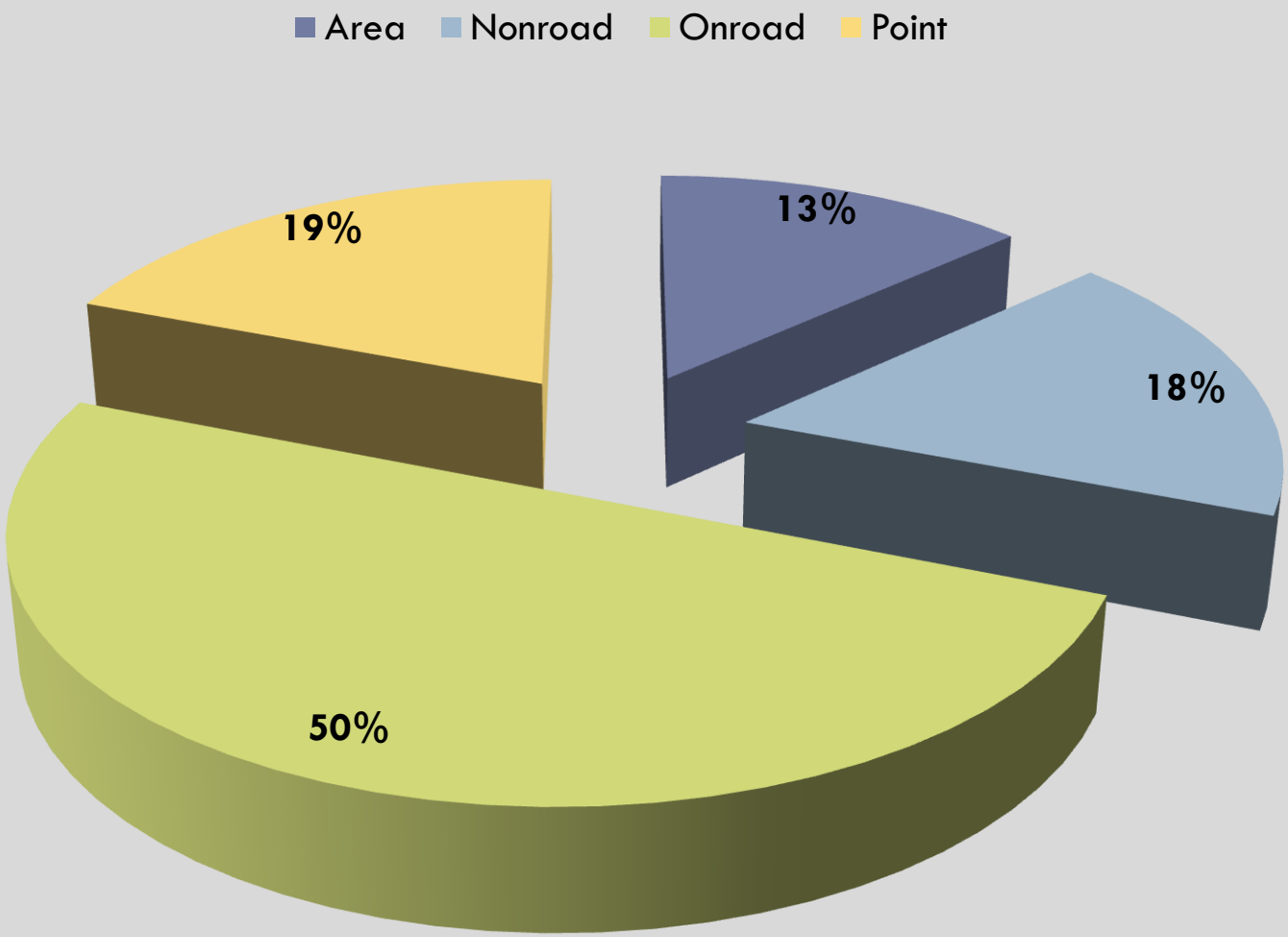
This diagram depicts how ground-level ozone is formed.



http://www.noaanews.noaa.gov/stories2004/s2205.htm


Lafayette Area VOC Emissions Summary, 2006 typical tons/day
Area
Nonroad
Onroad
Point
1%
32%
40%
27%

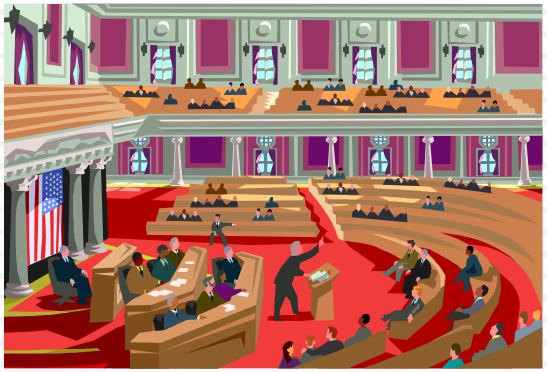
Lafayette Area NOx Emission Summary, 2006 typical tons/day



The Clean Air Act and Health

The Clean Air Act Amendments of 1990

- Requires EPA to set National Ambient Air Quality Standards for 6 Criteria Pollutants;
- The 6 pollutants are: Carbon Monoxide, Lead, Nitrogen Dioxide, Ozone, Particulate Matter and Sulfur Dioxide;
- Louisiana is in attainment of all NAAQS except Ozone;
- This discussion will focus on Ozone and the state's responsibility to meet the standard;
- The goal of the CAA was to protect human health and welfare.

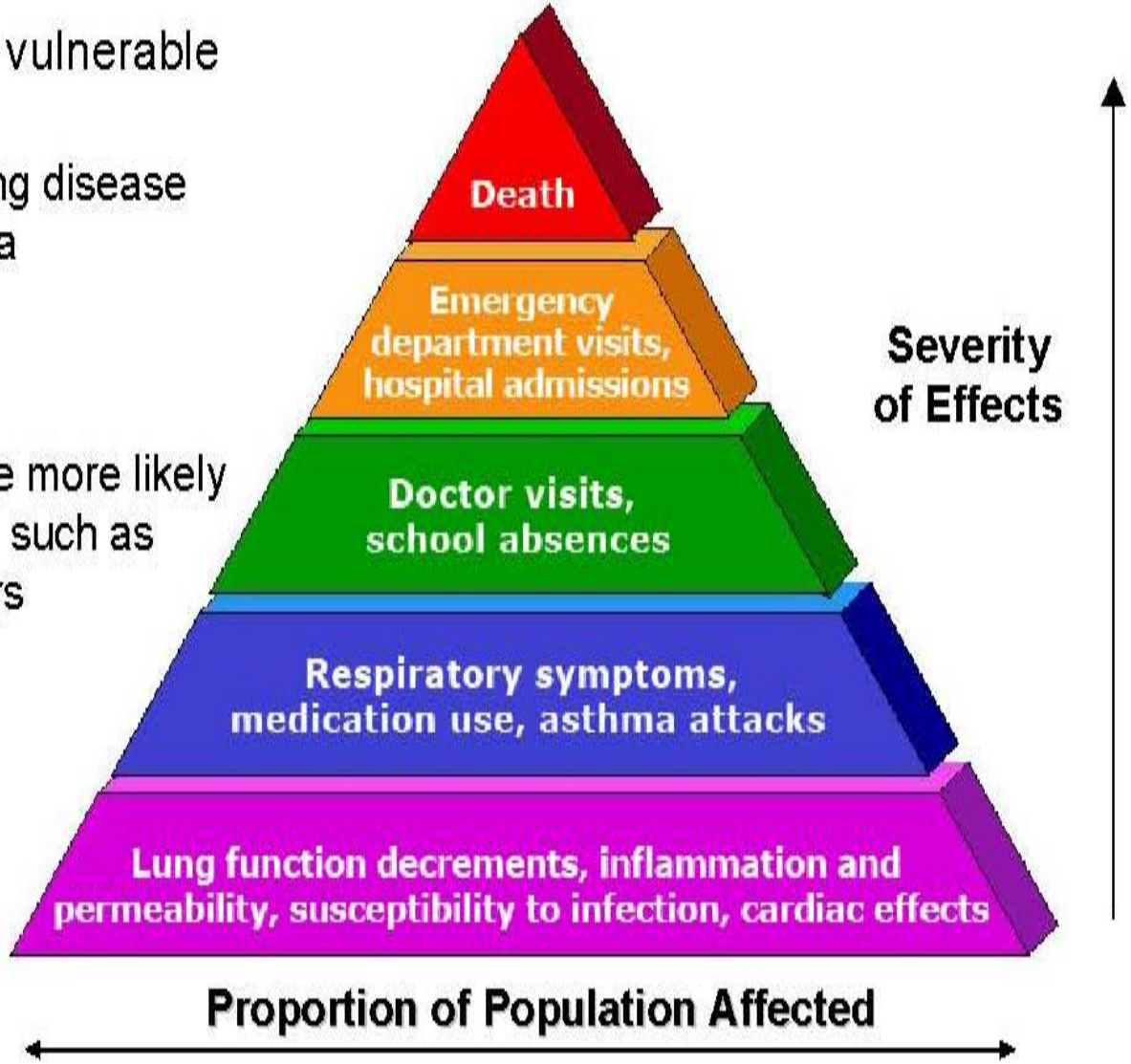


Ozone and Health

- Ozone can penetrate deep into the lungs and can:
  - Make it more difficult for people working or playing outside to breathe as deeply and vigorously as normal
  - Irritate the airways, causing: coughing, sore or scratchy throat, pain when taking a deep breath, and shortness of breath
  - Increase asthma attacks and use of asthma medication
  - Inflame and damage the lining of the lung by injuring the cells that line the air spaces in the lung
  - Increase susceptibility to respiratory infection
  - Aggravate chronic lung diseases such as asthma, emphysema and bronchitis
- Repeated episodes of ozone-induced inflammation may cause permanent changes in the lung, leading to long-term health effects and a lower quality of life
- Ozone may continue to cause lung damage even when symptoms have disappeared

Ozone Health Impacts: "Pyramid of Effects"

- Susceptible and vulnerable groups include:
  - People with lung disease such as asthma
  - Children
  - Older adults
  - People who are more likely to be exposed, such as outdoor workers



Health Benefit Results

- • In addition to the mortality benefits of reduced air pollution, the EPA estimates a standard of 0.075 ppm would prevent the following additional adverse health effects annually in 2020 throughout the United States*:
  - 380 cases of chronic bronchitis
  - 890 nonfatal heart attacks
  - 1,900 hospital and emergency room visits
  - 1,000 cases of acute bronchitis
  - 11,600 cases of upper and lower respiratory symptoms
  - 6,100 cases of aggravated asthma
  - 243,000 days when people miss work or school
  - 750,000 days when people must restrict their activities
- * Based on current US population of 300,000,000

Health Cost Savings

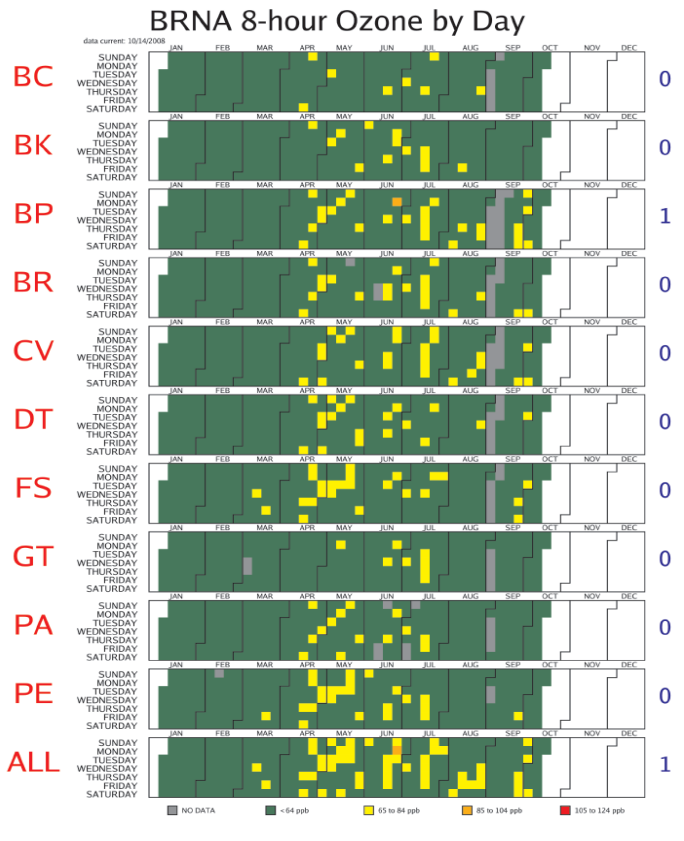
- Based on the technology scenarios analyzed, EPA estimates:
  - The average estimated value of these and other health benefits would range from a low of $2 billion to a high of $17 billion per year in 2020
  - The average estimated costs of implementing a standard of 0.075 ppm would range from a low of $7.6 billion to a high of $8.8 billion in 2020

Revised Air Quality Index (AQI)

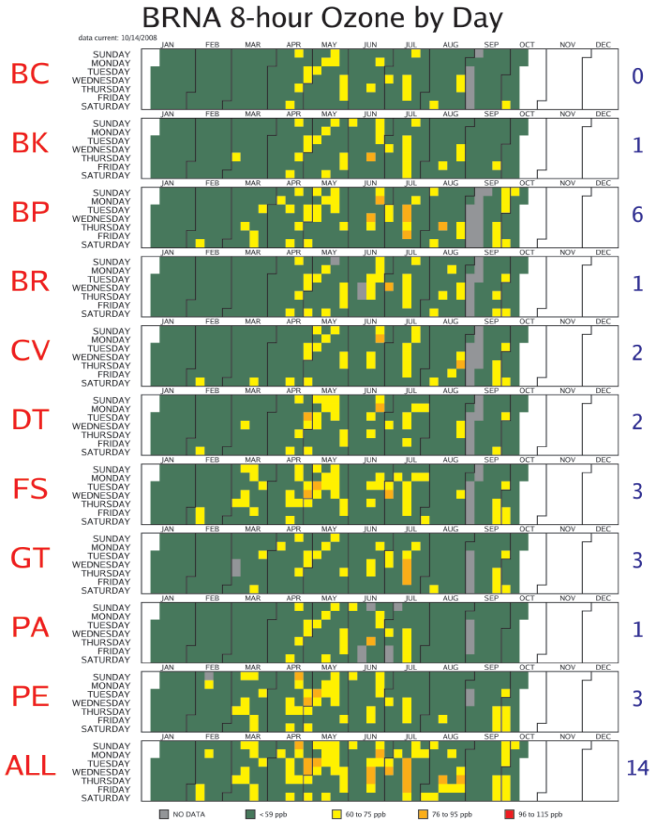
Category	AQI Value	1997 8-hour (ppm)	2008 8-hour (ppm)
Good	0-50	0.000-0.064	0.000-0.059
Moderate	51-100	0.065-0.084	0.060-0.075
Unhealthy for Sensitive Groups	101-150	0.085-0.104	0.076-0.095
Unhealthy	151-200	0.105-0.124	0.096-0.115
Very Unhealthy	201-300	0.125-0.374	0.116-0.374
Hazardous	301-400	No Change	No Change
	401-500	No Change	No Change

A Comparison of '97 and '08 NAAQS and the Air Quality Index

'97 NAAQS Forecast Days



'08 NAAQS Forecast Days



The New Ozone Standard

How will it affect Louisiana?

Economic Development Impact

- Non-attainment represents a “red flag” in the site selection process for both new facilities and expansions, especially for manufacturing prospects
- Non-attainment involves a more complex, expensive environmental permitting process that can reduce the competitiveness of existing business and industry
- Once in non-attainment, there is potential risk of significant increases in economic costs (e.g., emissions controls, penalty fees, RFG) on both industry and consumers if air quality does not improve sufficiently over time

What is the role of the state regulator?

- Work with city-parish leaders and businesses to develop an ozone pollution control strategy
- Work with area businesses and industries to develop an ozone pollution control strategy
- Submit recommendations for designations based on monitor data to EPA
- Rule revisions and promulgation
- Compilation and submittal of State Implementation Plans (SIP) for areas designated nonattainment.

Designations and Classifications

- Designation refers to whether or not an area is above or below the standard

- Classification categories are determined based on an area's ozone concentration.

Designations

- Attainment means that the monitor readings are at or below the standard;
- Nonattainment means that the monitor readings are above the standard;
- Unclassifiable means that there is no monitor data to reach a conclusion.

8-Hour Ozone Standard: The Revision for 2008

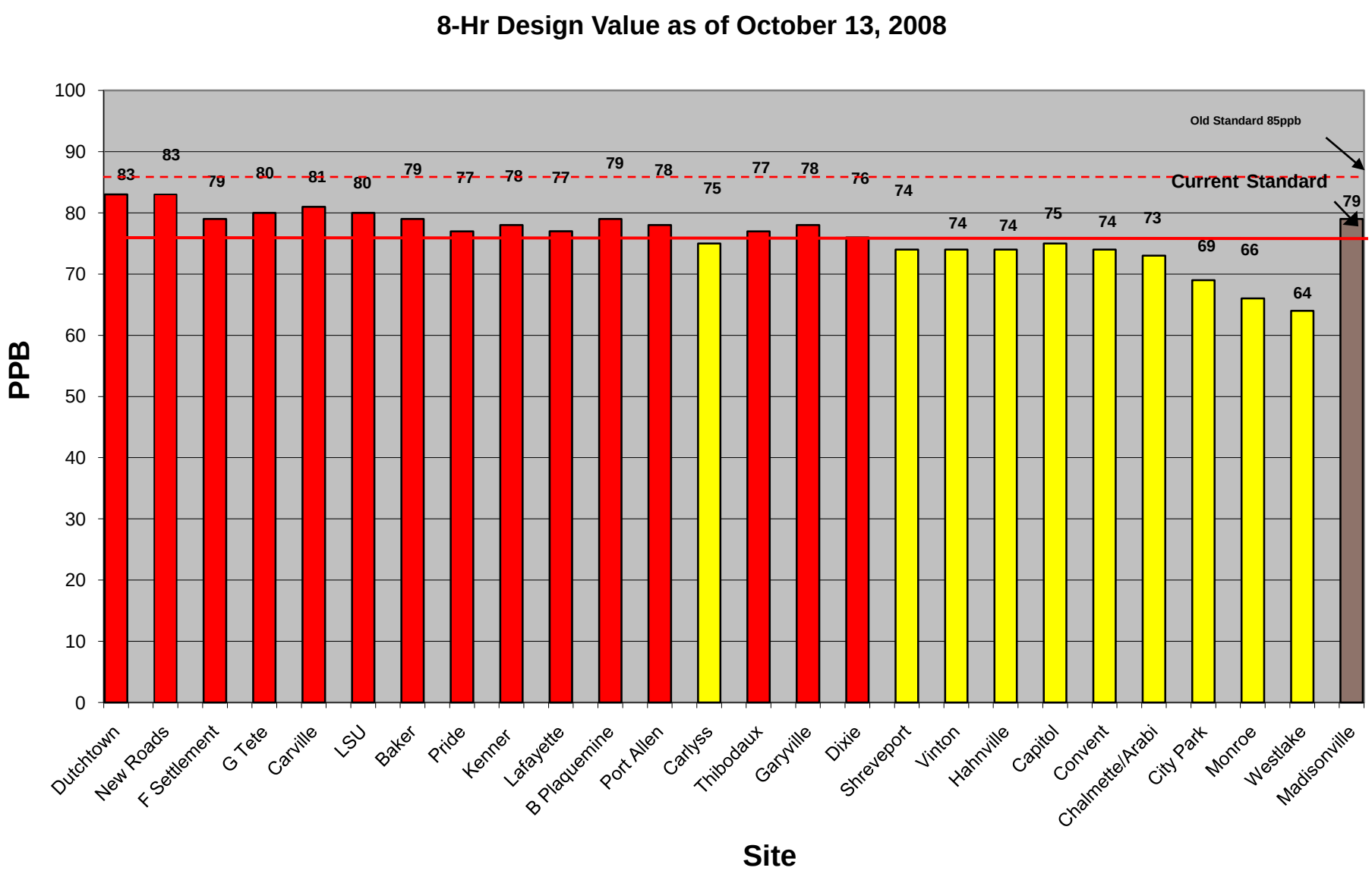
On March 12, 2008, EPA announced a new primary 8-hour ozone standard of 0.075 parts per million (ppm). The secondary standard was set identical to the primary.

26 parishes may potentially be designated nonattainment based on monitor data showing design values* above 0.075 ppm.

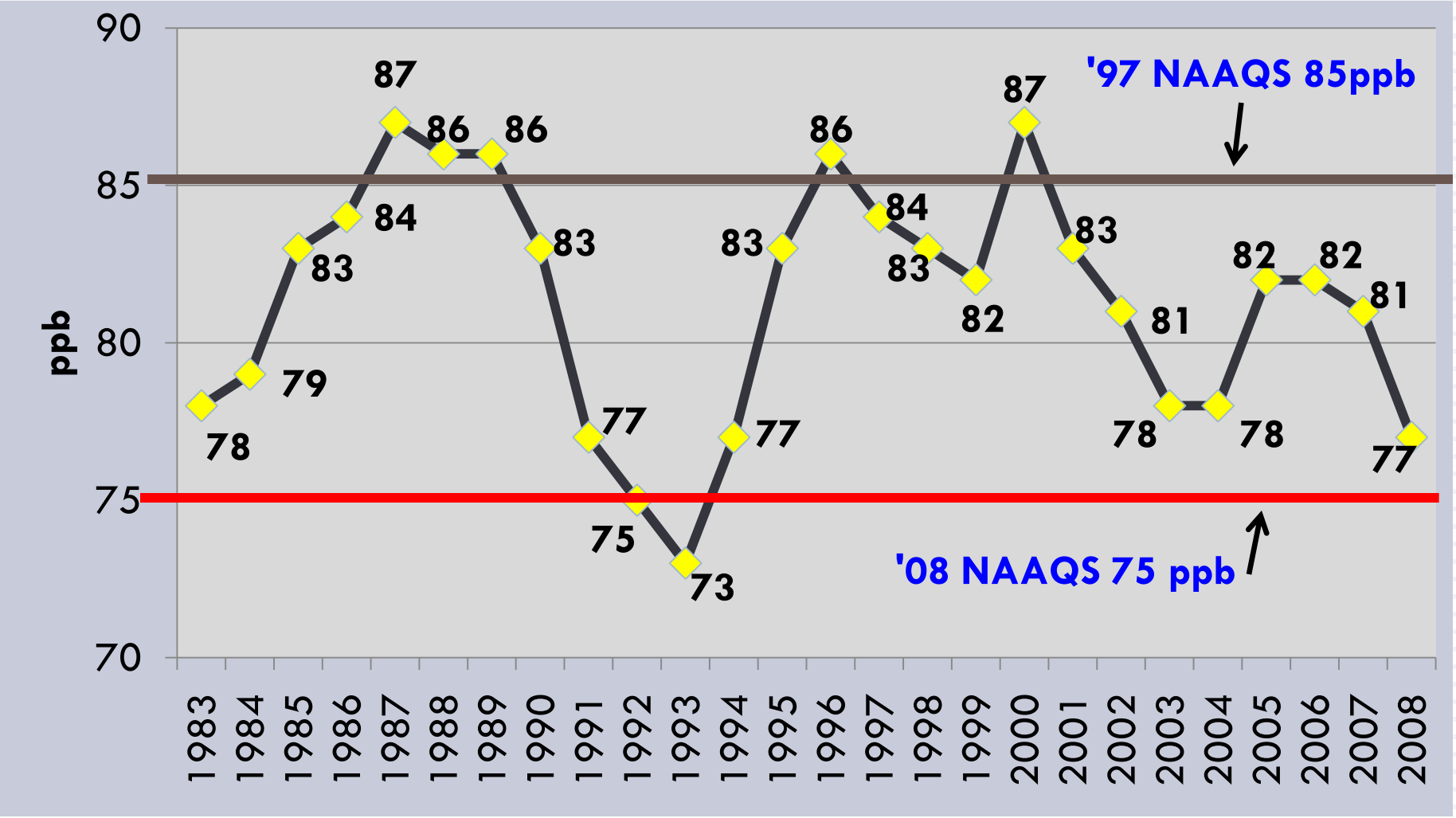
*Design Value – the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentration measured at each monitor within an area.

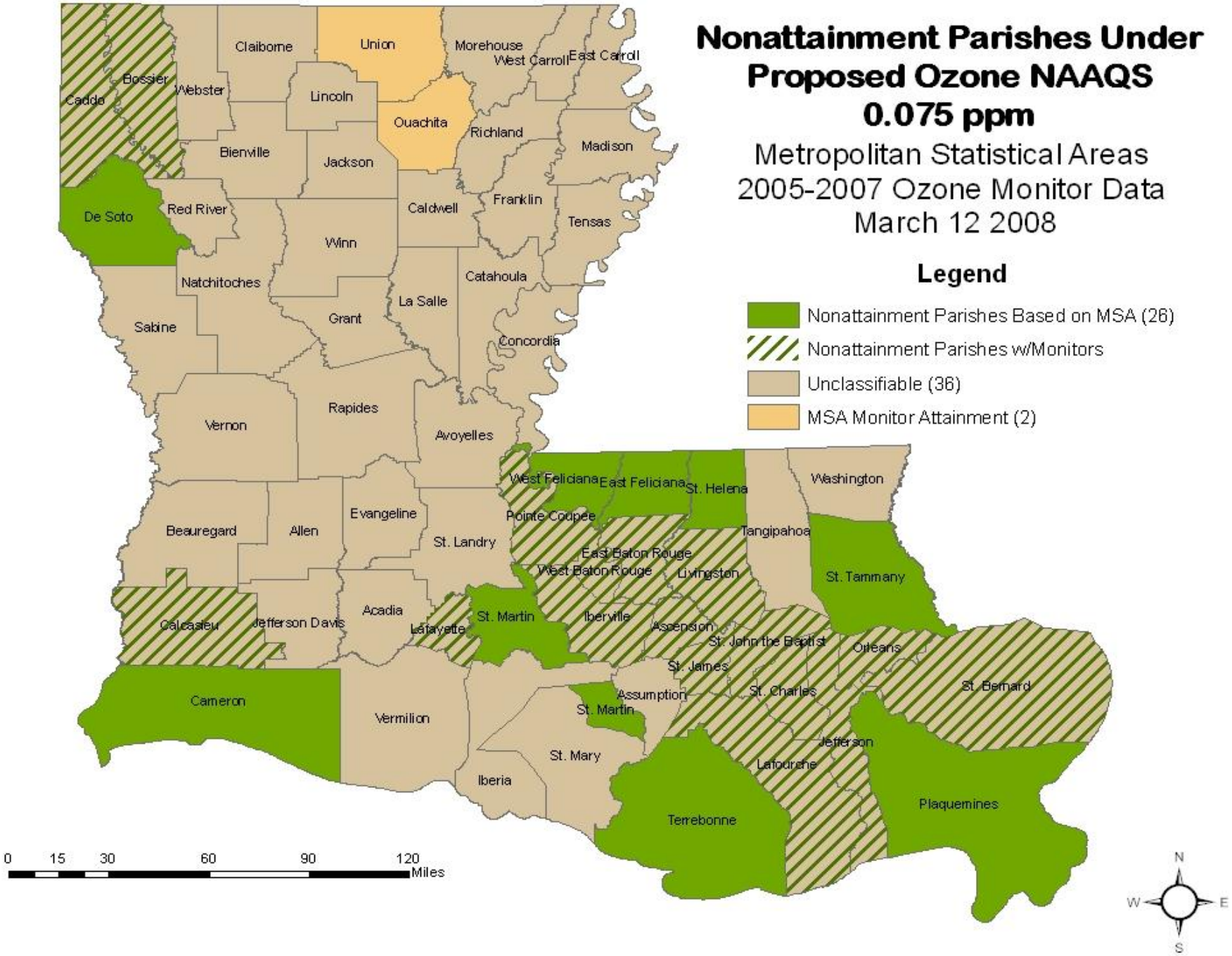
Monitoring sites in Louisiana

Typical Monitor Site

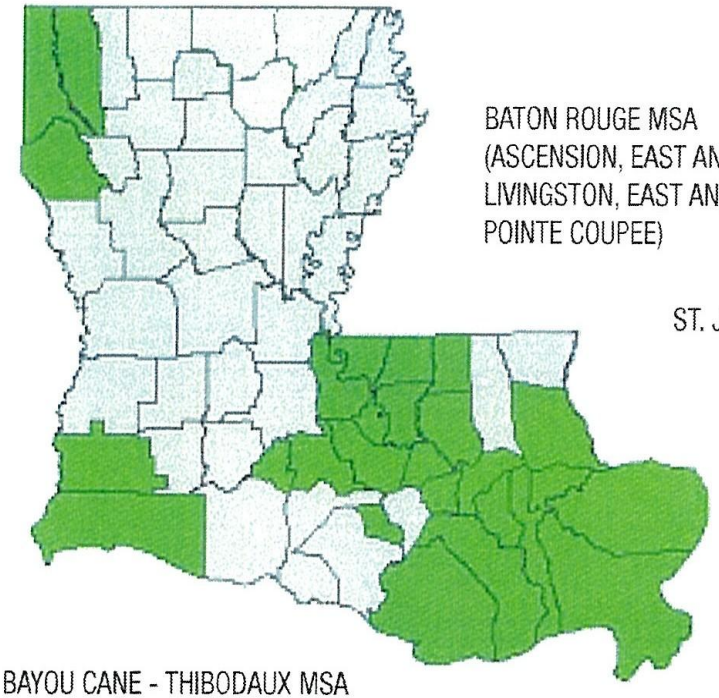

8-Hr Design Value as of October 13, 2008
PPB
Site
Old Standard 85ppb
Current Standard
100
90
80
70
60
50
40
30
20
10
0
83
83
79
80
81
80
79
77
78
77
79
78
75
77
78
76
74
74
74
75
74
73
69
66
64
79
Dutchtown
New Roads
F Settlement
G Tete
Carville
LSU
Baker
Pride
Kenner
Lafayette
B Plaquemine
Port Allen
Carlyss
Thibodaux
Garyville
Dixie
Shreveport
Vinton
Hahnville
Capitol
Convent
Chalmette/Arabi
City Park
Monroe
Westlake
Madisonville

Lafayette Area Design Values Graph




Nonattainment Parishes Under Proposed Ozone NAAQS 0.075 ppm
Metropolitan Statistical Areas
2005-2007 Ozone Monitor Data
March 12 2008
Legend
Nonattainment Parishes Based on MSA (26)
Nonattainment Parishes w/Monitors
Unclassifiable (36)
MSA Monitor Attainment (2)
Claiborne
Union
Morehouse
West Carroll
East Carroll
Bossier
Caddo
Webster
Lincoln
Ouachita
Richland
Madison
Bienville
Jackson
Franklin
Tensas
De Soto
Red River
Caldwell
Winn
Natchitoches
Catahoula
La Salle
Grant
Sabine
Concordia
Rapides
Vernon
Avoyelles
West Feliciana
East Feliciana
St. Helena
Washington
Evangeline
Pointe Coupee
Beauregard
Allen
St. Landry
Tangipahoa
East Baton Rouge
West Baton Rouge
Livingston
St. Tammany
Acadia
St. Martin
Calcasieu
Jefferson Davis
Lafayette
Iberville
Ascension
St. John the Baptist
Orleans
St. James
St. Bernard
Cameron
Assumption
St. Charles
St. Martin
Vermilion
Jefferson
St. Mary
Lafourche
Iberia
Plaquemines
Terrebonne
0 15 30 60 90 120 Miles
N
W
E
S

NONATTAINMENT PARISHES AT 0.075 PPM



AFFECTED PARISHES

NONATTAINMENT PARISHES

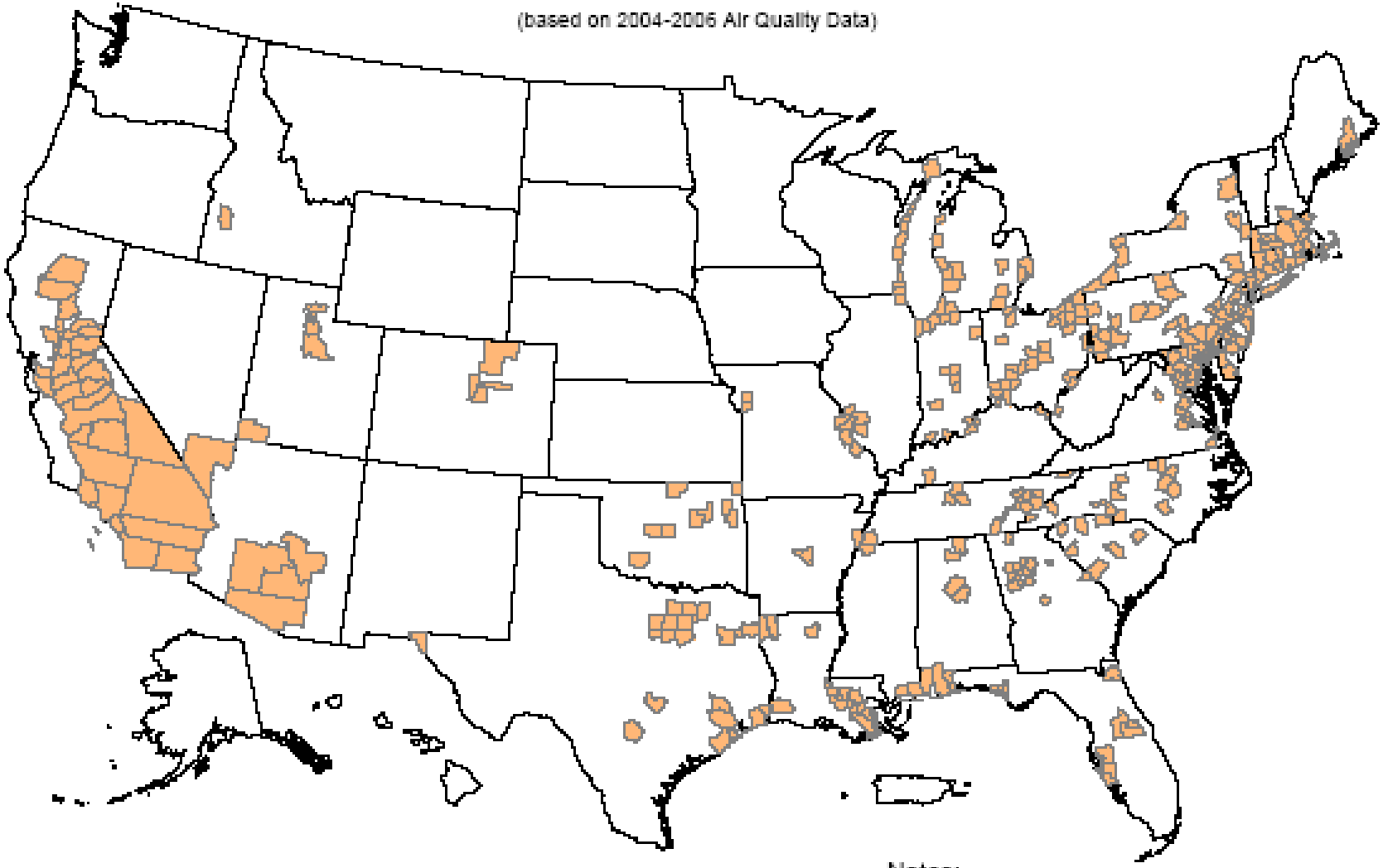
0 40 80 160 MILES

United States Environmental Protection Agency

Estimates are based on the most recent data (2004 – 2006). EPA will not designate areas as nonattainment on these data, but likely on data from 2006 – 2008 or later, which we expect to show improved air quality.

Counties with Monitors Violating the 2008 8-Hour Ozone Standard of 0.075 parts per million (ppm)

(based on 2004-2006 Air Quality Data)



Notes:

[1] 345 monitored counties violate the 2008 8-hour ozone standard of 0.075 parts per million (ppm).

[2] Monitored air quality data can be obtained from the AQS system at http://www.epa.gov/ttn/airs/airsaqs/

Implementation of the New Standard's Timeline

- The anticipated implementation schedule for this new standard is as follows:
  - State Recommended Designations — March 12, 2009
  - EPA Final Designations — March 12, 2010
  - Classification/Rules — March 2009 – April 2010
  - SIPs Due — 2013
  - Attainment Dates — 2013 – 2030 (depends on severity of problem)
- It should be noted that this schedule is subject to change due to on going litigation.

Classification Requirements

Marginal, Moderate, Serious, Severe, and Extreme

Classification Requirements for Marginal Areas

- Attainment timeline is 3 years
- Major Source 100tpy of either VOC or NOx
- Emissions Inventory
- New Source Review (NSR) for Air Permitting
- Offsets of 1.1 to 1
- Transportation Conformity
- General Conformity (federal, non-highway projects)
- Additional requirements if you fail to attain the standard/Automatic bump-up to Moderate

Classification Requirements for Moderate Areas

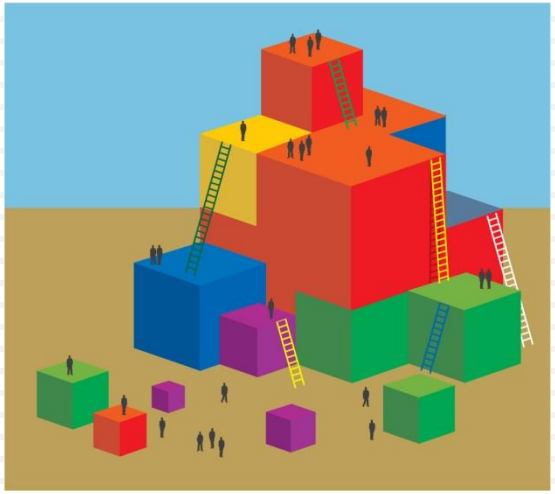
- Attainment timeline is 6 years
- Marginal Requirements and:
- 15% Reduction from Baseline Within 6 Years
- RACT on Major Sources(Reasonably Available Control Technology)
- Gasoline Reid Vapor Pressure (RVP) of $\leq$9.0 psi
- Stage II Vapor Recovery
- Inspection/Maintenance Program for vehicles
- Offsets of 1.15 to 1
- Automatic bump-up to Serious

Impacts of the 2008 Standard on New Nonattainment Parishes, Local Governments, Industries and Businesses

- Changed Emission Inventory Requirements
- Lowered Major Source Thresholds
- New Source Review
- Emission Offsets
- RACT Requirements
- Transportation Conformity/General Conformity
- Automobile Inspection/Maintenance
- Regulations on small businesses (bakeries, dry cleaners, paint shops, etc.)

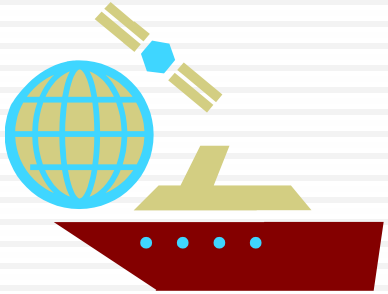
What are the next steps?

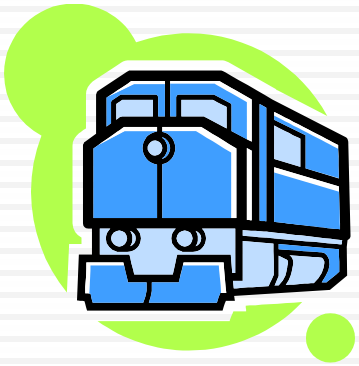
- Implementation of national rules
- Implementation of state rules to comply with the Clean Air Act requirements
- Implementation of Ozone Action Day
- Voluntary Measures
- Education and Awareness



Federal Rules in Progress

- National Refinery Initiative
- Clean Air Visibility Rule
- Ultra Low Sulfur Diesel Rule
- Heavy Duty Diesel Rule
- Locomotive and Marine Vessel Rule
- Small Spark-Ignition Engine Rule





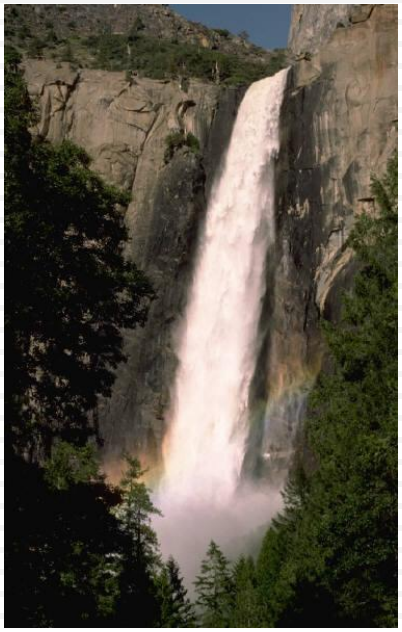
National Refinery Initiative

Refinery Consent Decrees

- Affects Oil Refineries in US
- Requires Installation of Control Equipment to Reduce Emissions of NOx, SO2 and Particulates
- Implementation Time Varies According to Agreement Between EPA and Affected Company

Clean Air Visibility Rules (Regional Haze)

- Affects sources with potential to emit more than 250 tons/year of NOx, SO_2, or PM_{10}.
- Reduces SO_2 by 13,672 tons/year and NOx by 3,498 tons/year



Ultra-Low Sulfur Diesel Rule

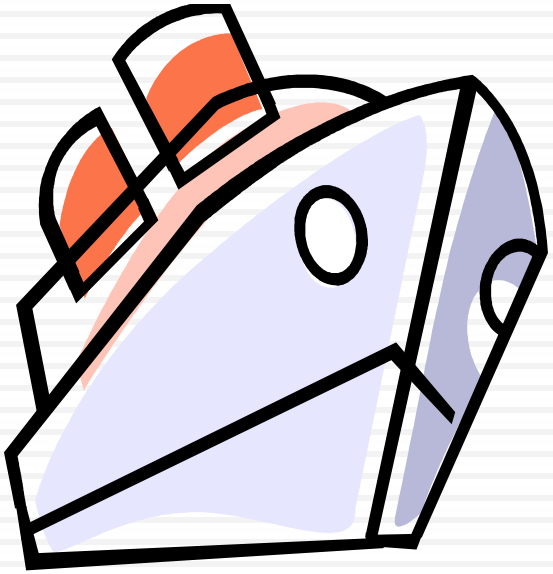
- Affects Fuel for Highway and Non-Road Engines
- Begins in 2007 and Complete in 2014
- Reduces Sulfur in Fuel to 15ppm
- At Completion, PM reduced 95%, NOx 90%

Heavy-Duty Diesel Rule

- Affects heavy-duty trucks beginning with 2007 model year, completely phased in by 2010.
- Reduces NOx and diesel sulfur content.

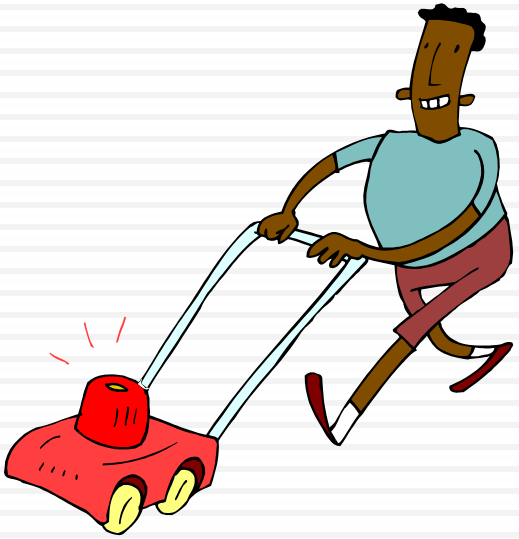
Locomotive and Marine Vessel Rules

- Reduces locomotive and marine vessel PM emissions by 90% and NOx emissions by 80%
- Begins phase-in starting 2009



Small Spark-Ignition Engines

- Reduces small spark-ignition engine VOC emissions by 35%.
- Phase-in 2011 or 2012 depending on size.

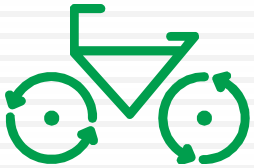


Reductions through State Rulemaking

- Add Chapter 21 VOC Controls
  - Extend Controls Statewide
  - VOC Storage Tank Emissions
  - Limit Use of Flares for Non-Emergency Venting
  - Use of Infrared Camera To Audit for Leaks
- Add Chapter 22 NOx Controls
  - Extend Rule to Areas Outside of BR MSA
  - Tighten Emission Factors
  - Limit Use of Averaging and Credits
  - Eliminate Some Exemptions

Transportation Reduction Measures

- Vehicle Emission Reduction Activities
  - Ridesharing
  - Bicycle Lanes
  - Compressed Workweek, Flex-Hours
  - Telecommuting
  - Mass Transit: Buses, Light Rail, Vanpools



Reduction thru Voluntary Measures

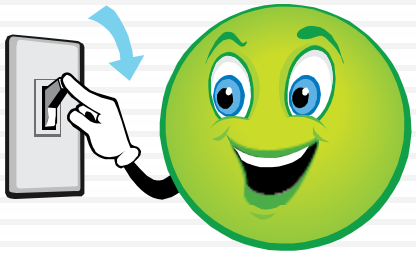
- Open Burning Restrictions
- Engine Idling Restrictions
- Truck Stop Electrification
- Vehicle Scrappage Program
- Ozone Action Day Incentives
- Clean City Coalition Programs
- Port and Marine Vessel Emission Reductions

Ozone Action Day Reduction Measures

- Maintain your vehicle properly
- Trip chain, combine errands and limit daytime driving
- Ride public transportation or carpool to work
- Take your lunch to work
- Walk or ride a bicycle for short trips.
- Refuel when its cool - after 6 p.m. Don't top off your tank –

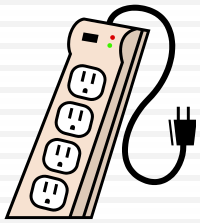
- Avoid prolonged idling and jackrabbit starts - "Drive Emission-wise".
- Wait until the evening (6 p.m.) to mow your lawn or use gas powered lawn equipment

- Barbecue with electric starter or use a chimney, not fluid starter.
- Conserve energy in your home
- Spread the word! Talk to your coworkers and neighbors about the Ozone Action Program.



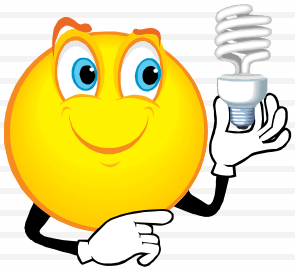
Residential Energy Conserving Measures

- New air conditioners should be at least 13 seer and the temperature should be adjusted when leaving the home or use a programmable thermostat.
- Use low temperature setting on water heaters.
- Purchase only Energy Star appliances.
- Replace incandescent bulbs with Energy Star Compact Fluorescent Lamps (CFLs).
- Wash clothes on colder settings.
- Use the right size burner for the size of pot (small pot on small burner), and cover pots and pans while cooking
- Unplug unused devices, or install smart power strips on grouped electronics (i.e. computer/monitor/speakers)
- Seal around all doors and have weather stripping and thresholds properly installed



Commercial Energy Conserving Measures

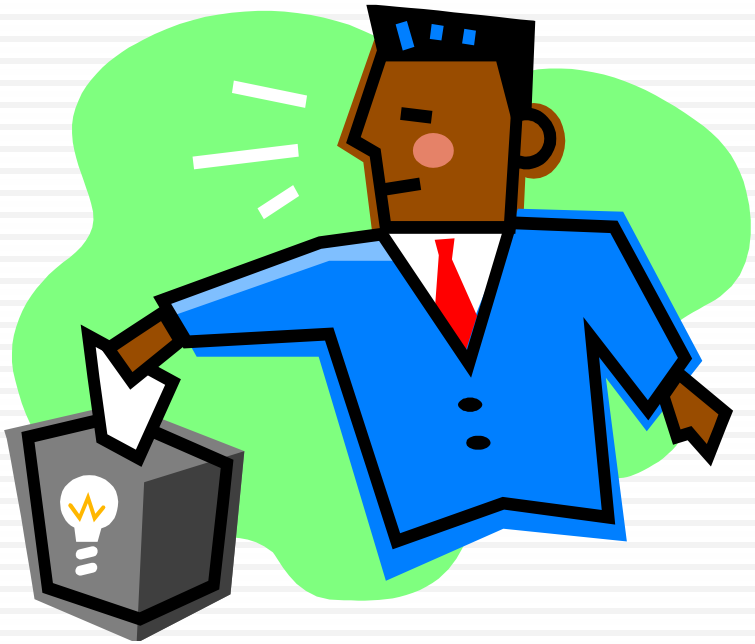
- Cool roof: Select a light-colored or reflective roof coating
- Ensure that all windows and doors close and seal properly
- Install high-efficiency luminaries (lights and ballasts).
- Install occupancy controls for lighting systems where possible
- Install solar films or solar screening on windows receiving direct sunlight
- Have the building commissioned to ensure proper operation of building systems
- Install advanced heating and air conditioning controls
- Residential and commercial building energy conserving measures were provided by the Louisiana Department of Natural Resources. More information can be found at www.dnr.louisiana.gov or by calling 800-836-9589.



Path Forward

- Meet with stakeholders in potential nonattainment areas
- Work with EPA on Implementation Rules
- Work through Clean Cities to promote voluntary measures
- Promote Air Quality Awareness
- Build on the work in the BR Nonattainment area to help other areas with implementation.

Comments or Suggestions



Comments and Suggestions can be submitted here in the Suggestion Box or on the website electronically.

Statewide Ozone Steering Committee Members:

SWEPCO/AEP

LA Municipal Association (LMA)

LA Association of Business and Industry (LABI)

LA Chemical Association (LCA)

Baton Rouge Clean Air Coalition

Police Jury Association of Louisiana

LA Environmental Action Network (LEAN)

LA Pulp and Paper

LA Independent Oil and Gas Association (LIOGA)

LA Mid-Continent Oil and Gas Association (LMOGA)

LA Oil Marketers & Convenience Store Operators (LOMCSA)

LA Department of Environmental Quality

LA Department of Economic Development

US EPA Region 6

Sierra Club

City of Shreveport

City of Lafayette

Greater New Orleans Inc.

Questions? Ask our DEQ experts!

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- Maurice Oubre maurice.oubre@la.gov

For More Information:

Statewide Ozone Steering Committee Website:

http://www.deq.louisiana.gov/portal/tabid/2849/Default.aspx

EPA Ozone website:

http://www.epa.gov/air/ozonepollution/

Lawnmower buy back program:

http://www.epa.gov/oar/recipes/smallen.html

http://www.epa.gov/oar/recipes/mowers.html