



19th International Emission Inventory Conference

September 28 – 30, 2010

San Antonio, Texas

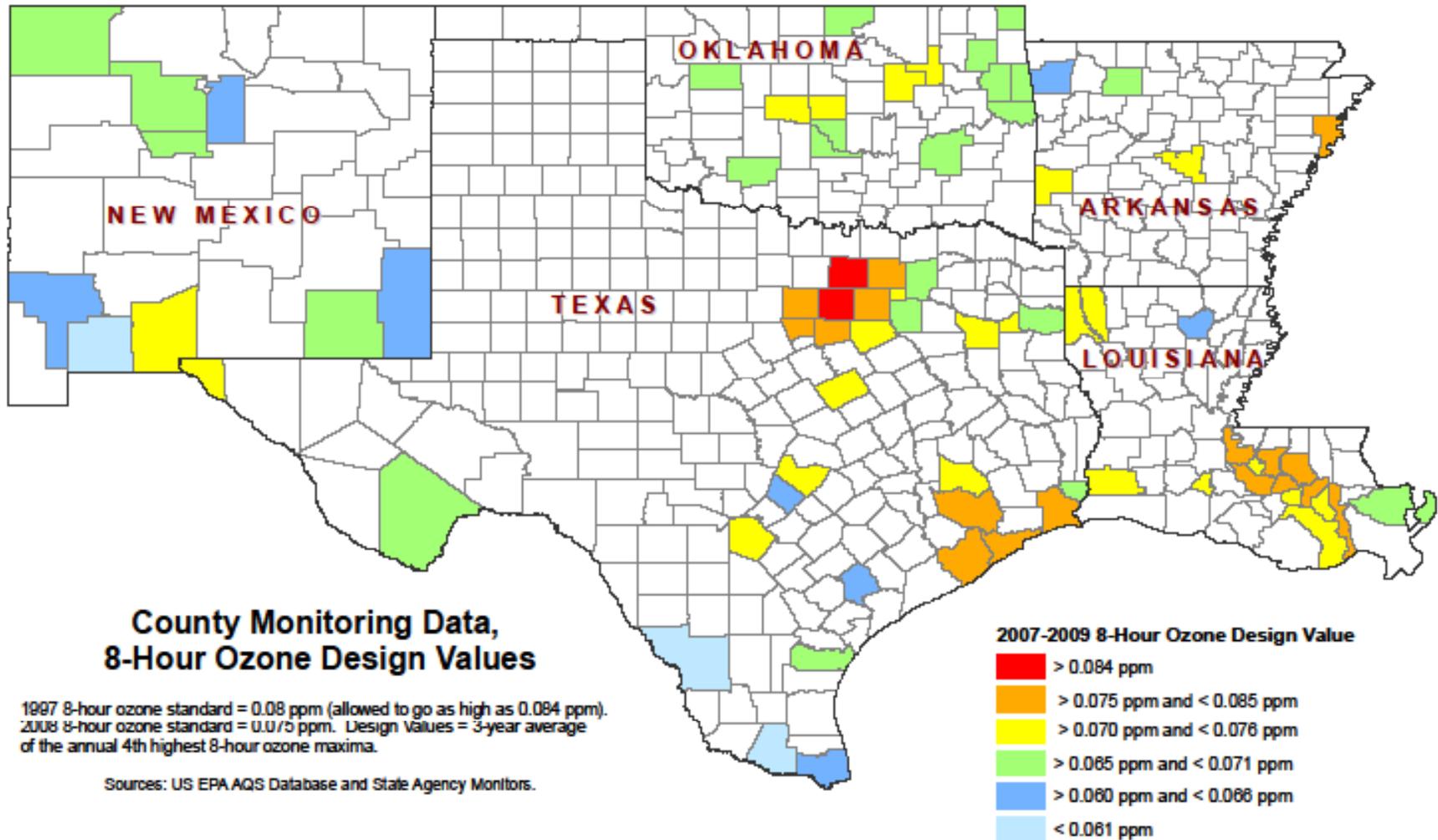
**Al Armendariz
Regional Administrator
US Environmental Protection Agency
Region 6**



Regional Perspective on the Critical Importance of Accurate Emissions Inventories

- Nonattainment SIP Modeling
- PSD Permitting Actions
- Targeting of Federal, State, Local Funds to Achieve Emissions Reductions
- Interactions with EJ and Community Groups
- Enforcement of Permitting Requirements
- Getting GHG Emissions Reductions

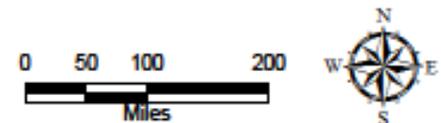
Region 6 Ground Level Ozone Concentrations

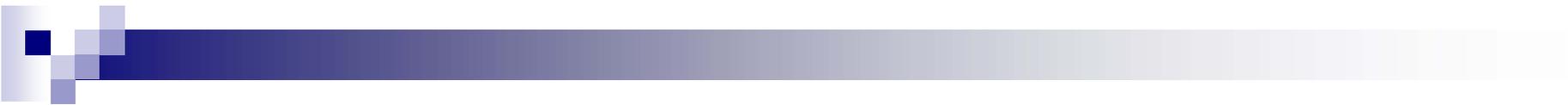


County Monitoring Data, 8-Hour Ozone Design Values

1997 8-hour ozone standard = 0.08 ppm (allowed to go as high as 0.084 ppm).
2008 8-hour ozone standard = 0.075 ppm. Design Values = 3-year average
of the annual 4th highest 8-hour ozone maxima.

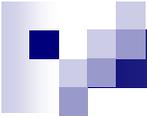
Sources: US EPA AQS Database and State Agency Monitors.





Need for Improved Data In Region 6

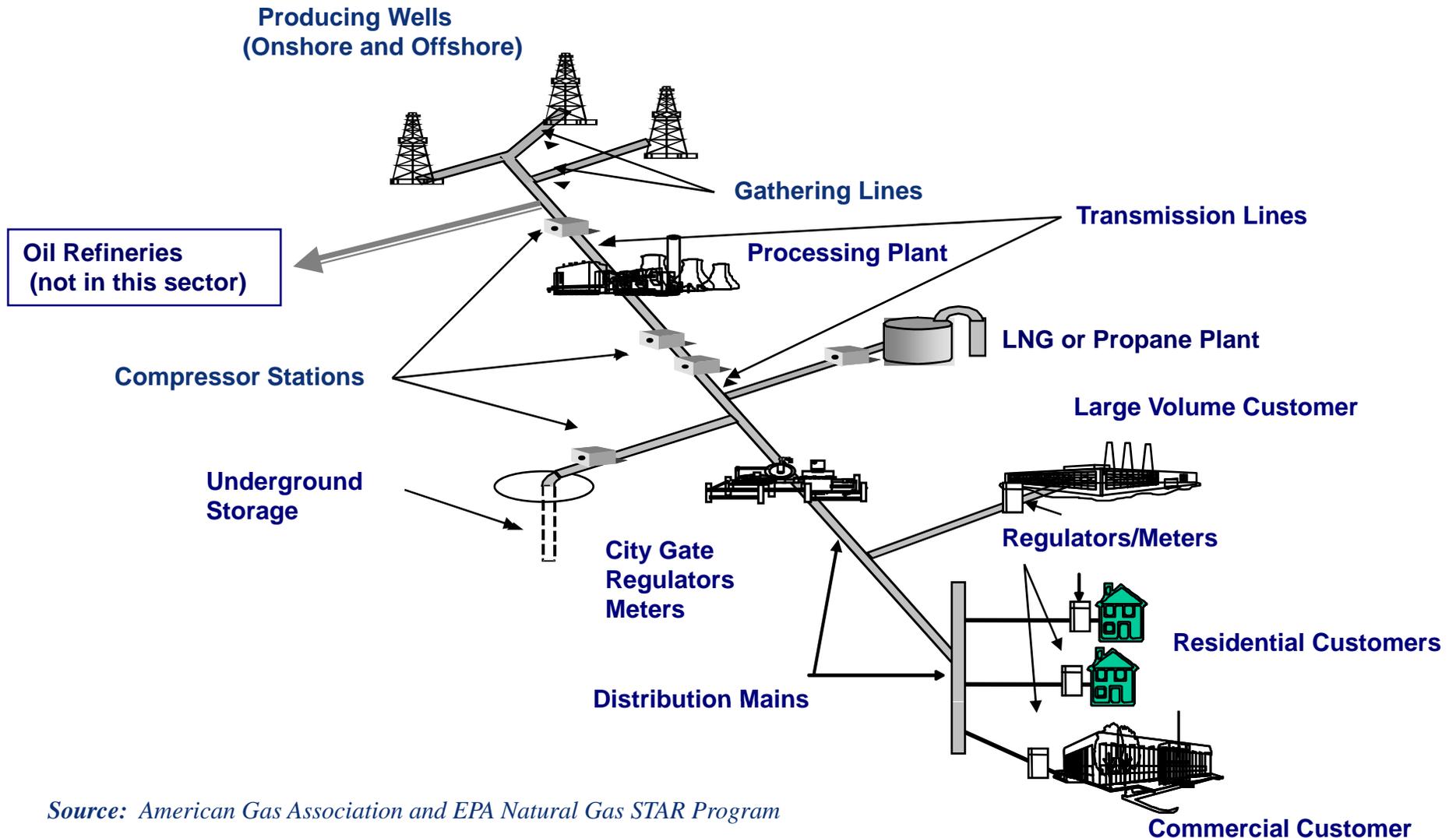
- Oil and Gas Production Fields
- Fugitive Emissions (oil/gas, large industrial facilities)
- Interstate Transport
- VOC speciation, NO/NO₂ speciation
- Upsets, Malfunctions, Spikes



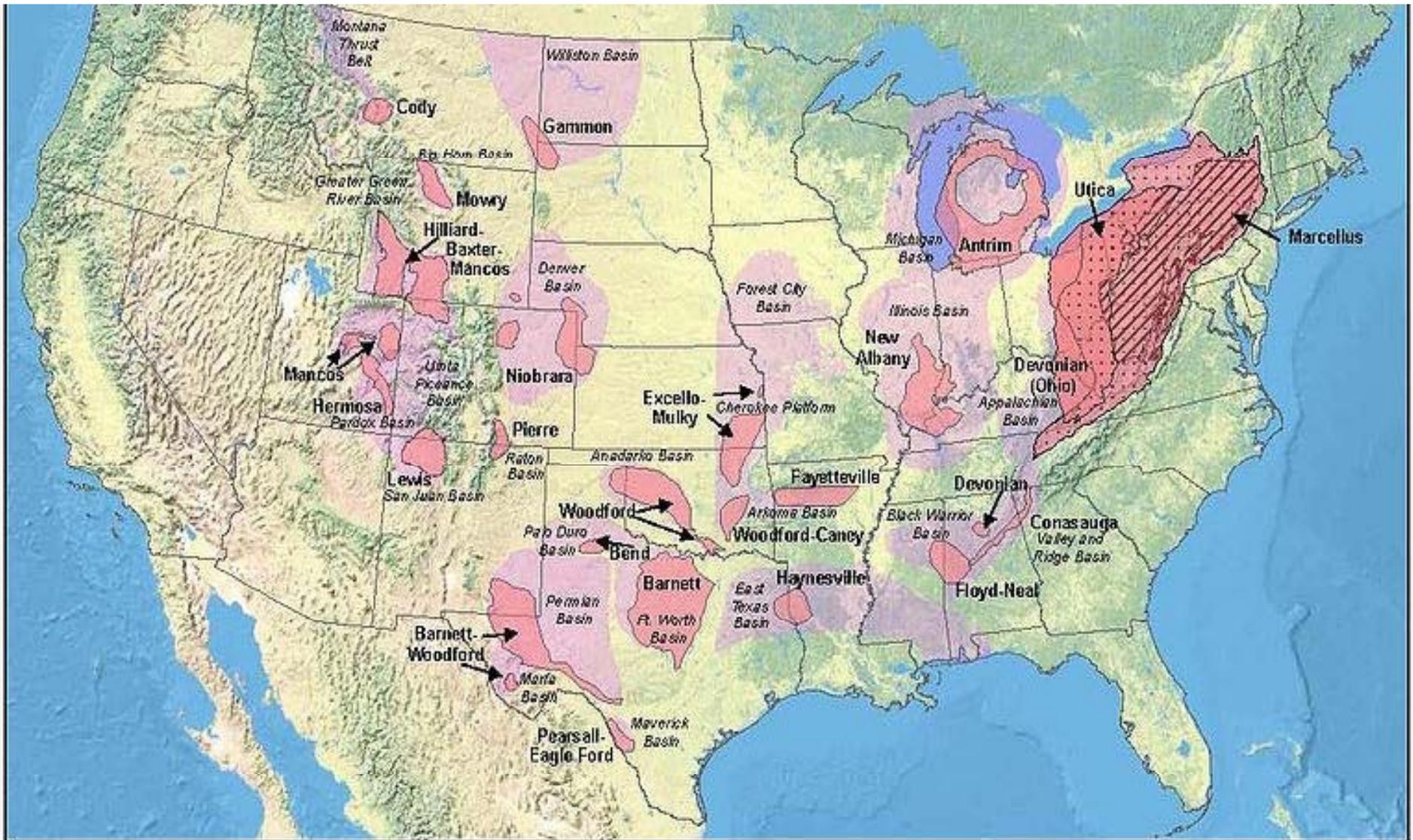
The Oil and Natural Gas sector has become the focus of increasing public attention

- Horizontal drilling and hydraulic fracturing enable extraction of shale gas
- Gas reserves have gone from under 50 years to over 100 years
- Recent gas boom has heightened public concern (water and air impacts)
- Winter ozone exceedances in western states linked to oil and gas activity
- Oil and natural gas sector accounts for 23% of U.S. methane emissions

Oil and Natural Gas Operations



Source: American Gas Association and EPA Natural Gas STAR Program



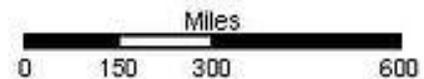
United States Shale Gas Plays

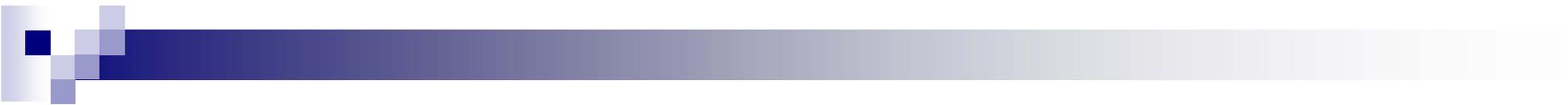
 Shale Gas Plays
 Basins

Stacked Appalachian Plays

 Marcellus
 Utica
 Devonian (OH shale)

November 2008





What are our regulatory tools?

- **New Source Performance Standards**
- **National Emission Standards for Hazardous Air Pollutants**
- **Control Techniques Guidelines**

Deadline Litigation for Emissions Regulations

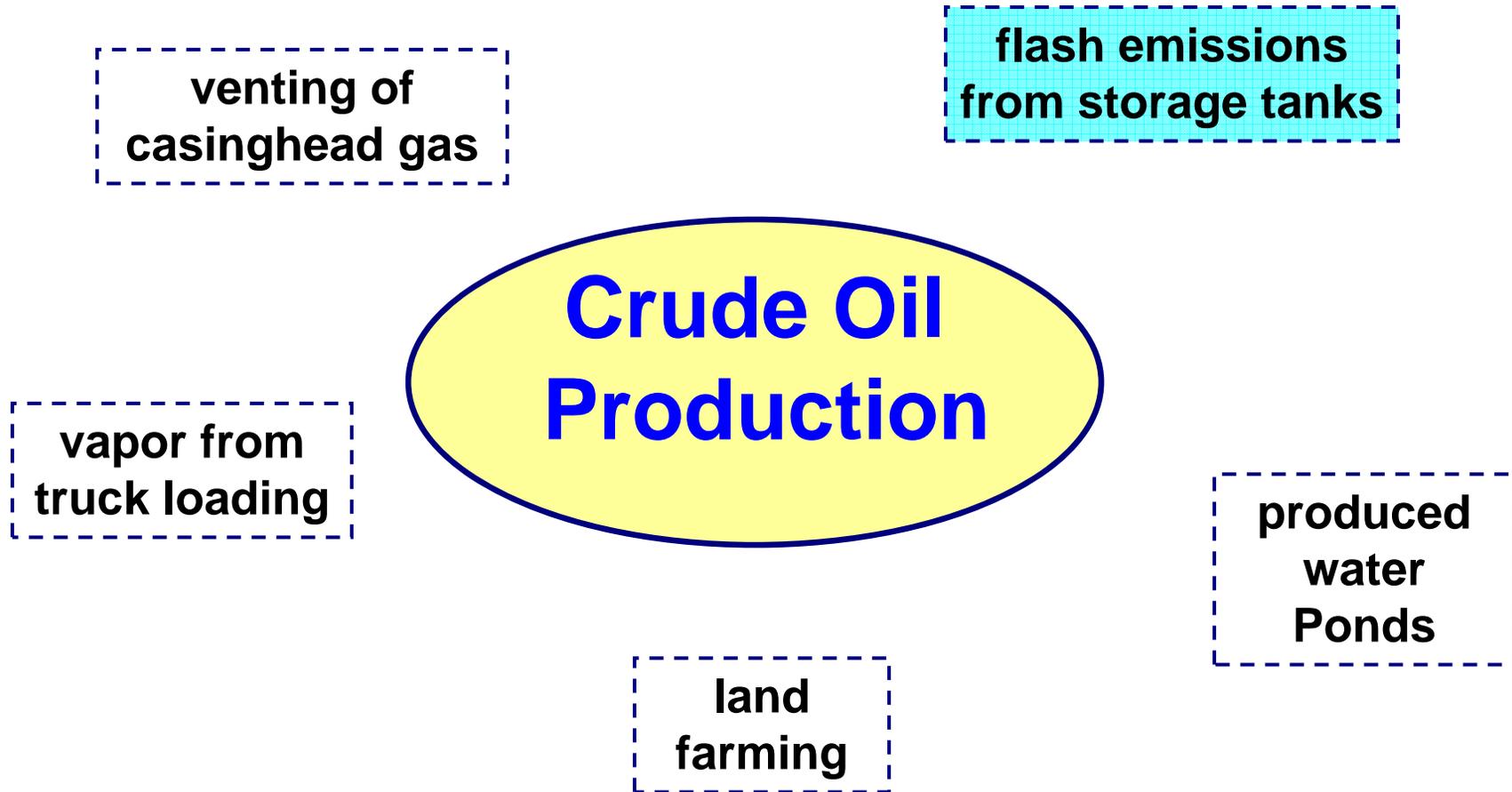
- CAA requires periodic reviews of NSPS and NESHAP
- In 2009 WildEarth Guardians and San Juan Citizens Alliance filed deadline suit for failure to conduct required reviews of the two NSPS and failure to conduct risk and technology reviews of the NESHAP rules
 - Consent Decree entered 02/04/10
 - Deadline for proposed action 01/31/11
 - Deadline for final action 11/30/11
- In addressing these obligations, we are evaluating the entire range of operations



What are we doing in our review?

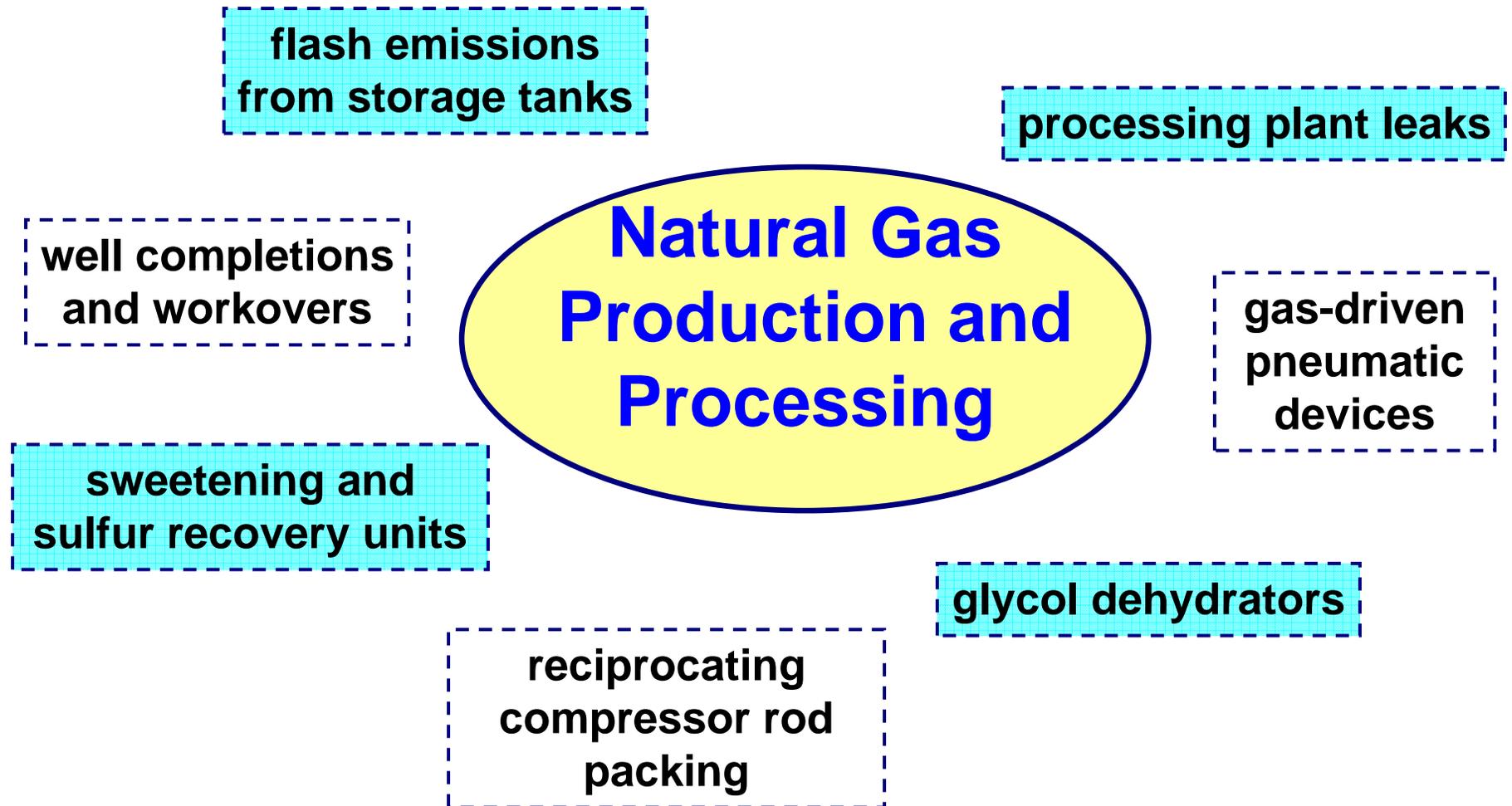
- We are looking at operations across the entire sector
 - Identifying emission sources
 - Quantifying emissions
 - Considering mitigation opportunities
 - Analyzing environmental and economic impacts
- The next few slides show the sources of emissions in each segment

Where are the emissions?



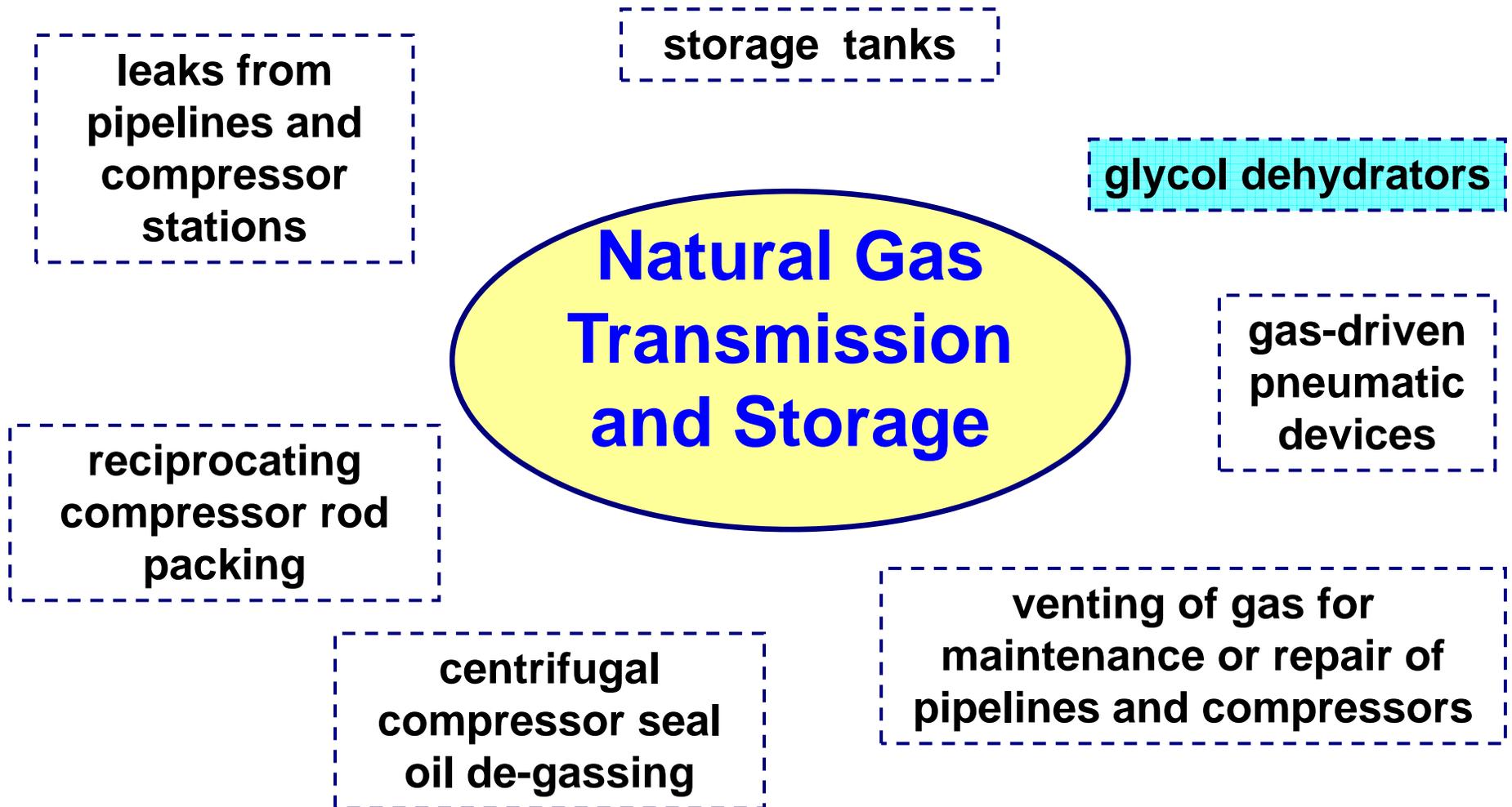
NOTE: Shaded boxes denote emission sources at least partially covered by existing rules

Where are the emissions?



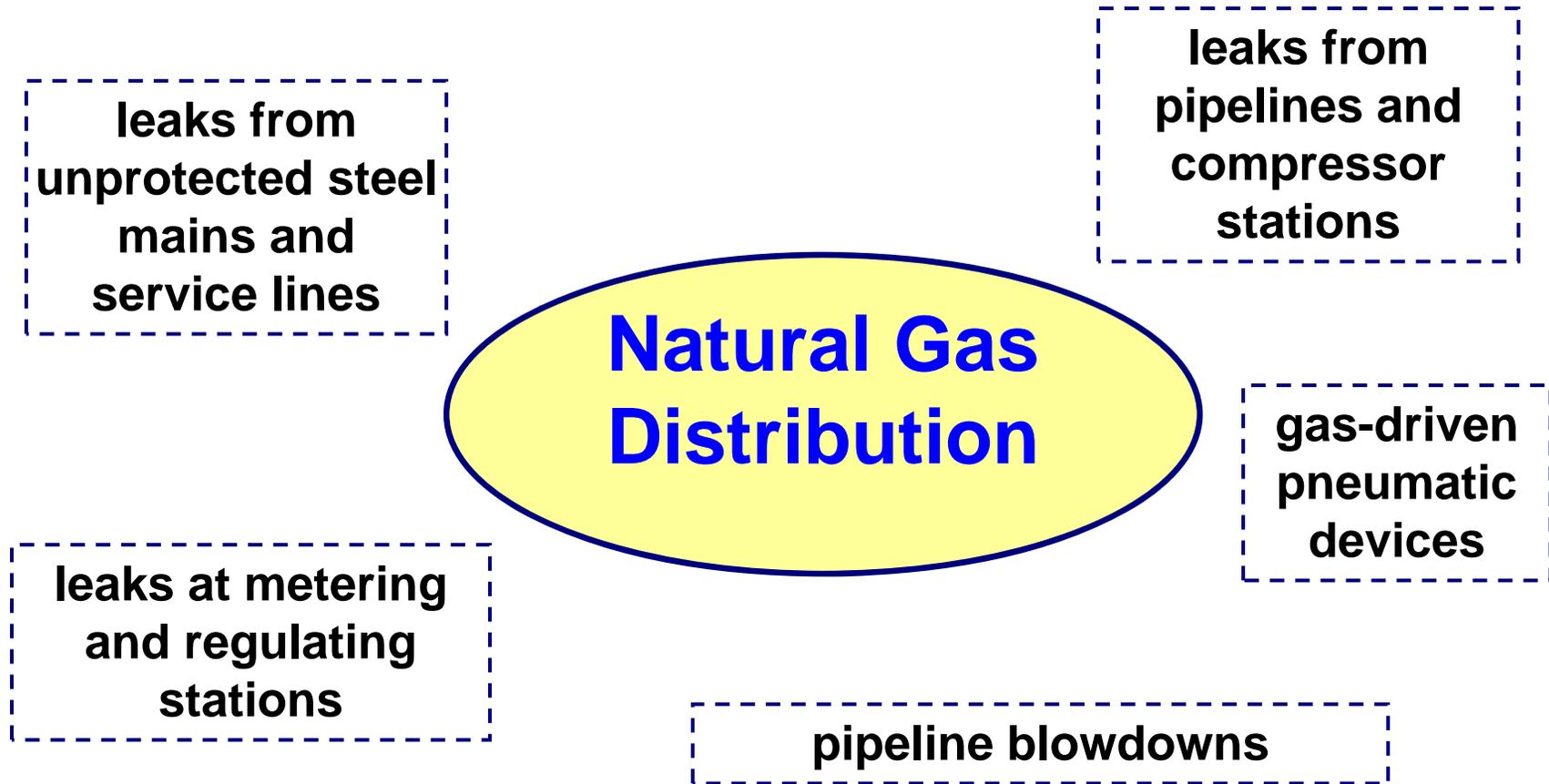
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Where are the emissions?



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Where do we go from here on MACT and NSPS rules?

- Propose action (1/2011)
- Public comment period following proposal
- Complete reviews and take final action (11/2011)



8-hour Ozone NAAQS Proposal

- Primary: Range between 60 and 70 ppb
- Secondary: Cumulative Seasonal Standard proposed in range between 7 and 15 ppm-hrs
- Decision expected around October 29, 2010.



EPA Region 6 Activities

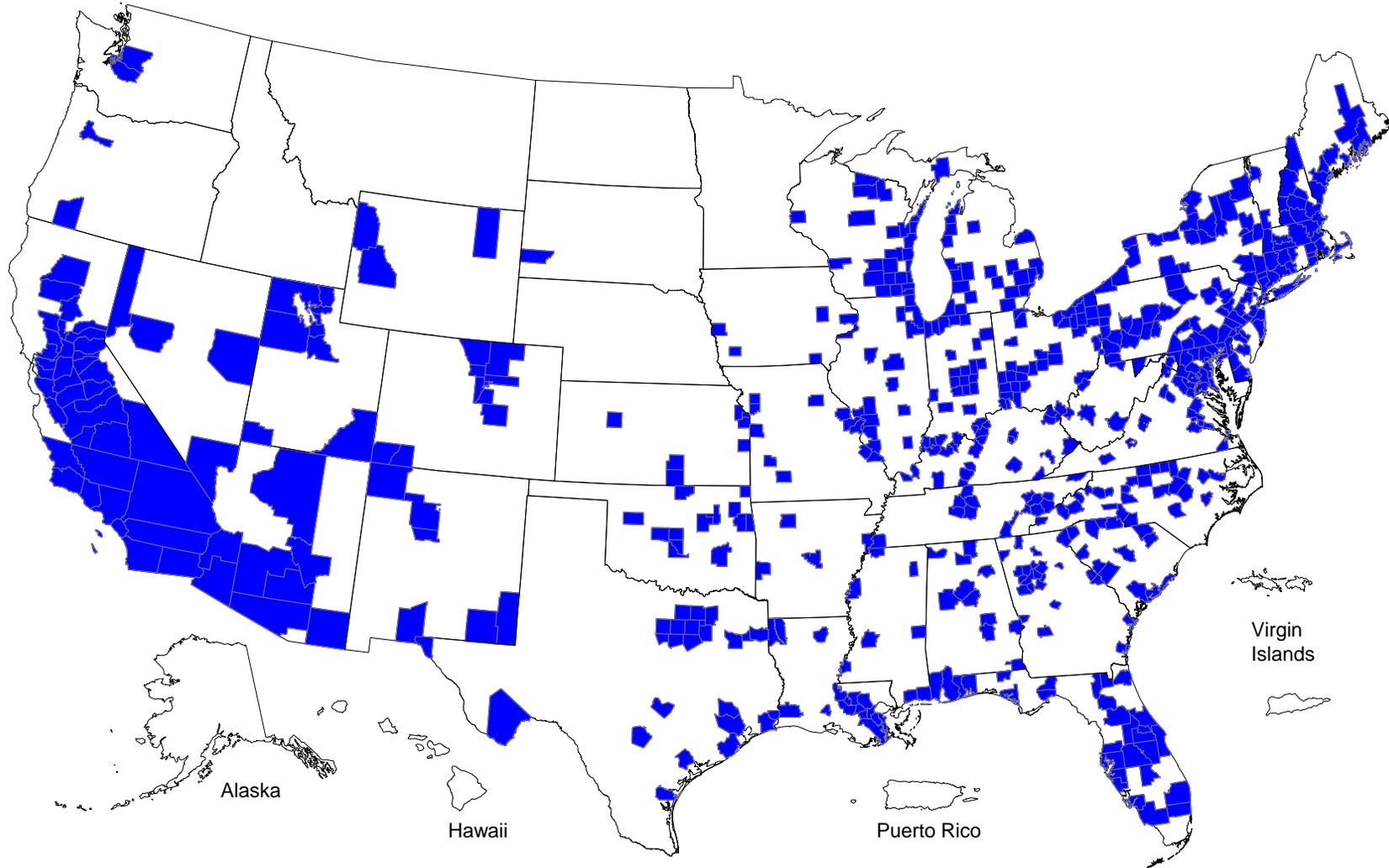
- May 2010 Region 6/State Meeting with Oil and Gas Industry
- July 2010 Region 6/Region 7 Call with States and Central States Air Resource Agencies (CenSARA)
- Goal – a high quality Oil and Gas emissions inventory



Comparison with NETAC 2005 Inventory

- The moderate scenario projection of 82 tons/day NO_x in 2012 is
 - Equal to the total 2005 NO_x emissions from all of the Haynesville counties in Texas
 - About 30% of the total 5-County 2005 NO_x inventory
- For the low development scenario, the Haynesville Shale 2012 NO_x emissions of 61 tons/day is
 - About 75% of the total 2005 NO_x emissions from all of the Haynesville counties in Texas
 - About 25% of the total NO_x emissions from all source categories for the 5-County area

Unofficial Counties with 2006-2008 8-hour Design Value Above 0.065 ppm



SIP Requirements for 8-Hour Ozone Nonattainment Areas

| Classification/Years to Attain | Requirements |
|--------------------------------|--|
| Extreme (20 years) | Clean Fuels and Controls for Boilers |
| Severe (15 – 17 years) | Offset VMT Growth Major Source Fee if Area Fails to Attain |
| Serious (9 years) | Stage II Gasoline Vapor Recovery Enhanced Monitoring and Enhanced Vehicle I/M Demonstration of Required Emission Reductions |
| Moderate (6 years) | Basic Vehicle Inspection and Maintenance Reasonably Available Control Technology & Measures Reasonable Further Progress Emissions Reductions Attainment Demonstration, Contingency Measures |
| Marginal (3 years) | Emissions Inventory & Emissions Statements New Source Review/Emission Offsets (NSR) |



Successful Regional Implementation Depends on Good Data

- Make sure we spend money (federal, state, local) where we get most impact.
- Use best data for PSD modeling exercises, to assist construction and economic development, but also to protect public health by vigorously protecting NAAQS.
- Answer questions for public, EJ groups, local and state officials on where problems are coming from, and how demonstrate that federal government gas expertise.
- Enforcement: How much is emitted during MSS episodes?



Next: Keynote Topic

How inventories can be used to assess the impact of the rapid growth of oil and gas production and associated air quality and environmental issues