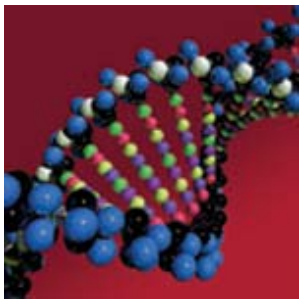
Development of the 2012 Ozone Model


Presentation to the NETAC
Technical Committee

October 16, 2009

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Outline for Today's Presentation

- Background and overview of emission inventory development
- Emissions Summary for Draft 2012 Inventory
  - Focus on 5-County Area
  - NOx and VOC emissions trends
- Local refinements to Draft 2012 Inventory

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CAMx Modeling of 2012

- Perform model attainment demonstration that shows future year emissions reductions leading to attainment of the 2008 ozone standard
- 2012 is the future year to be modeled with CAMx
  - Use May-June 2005 meteorology, biogenics, fires
  - Develop an anthropogenic emission inventory for 2012
- How do 2005 to 2012 emission changes affect Northeast Texas ozone?

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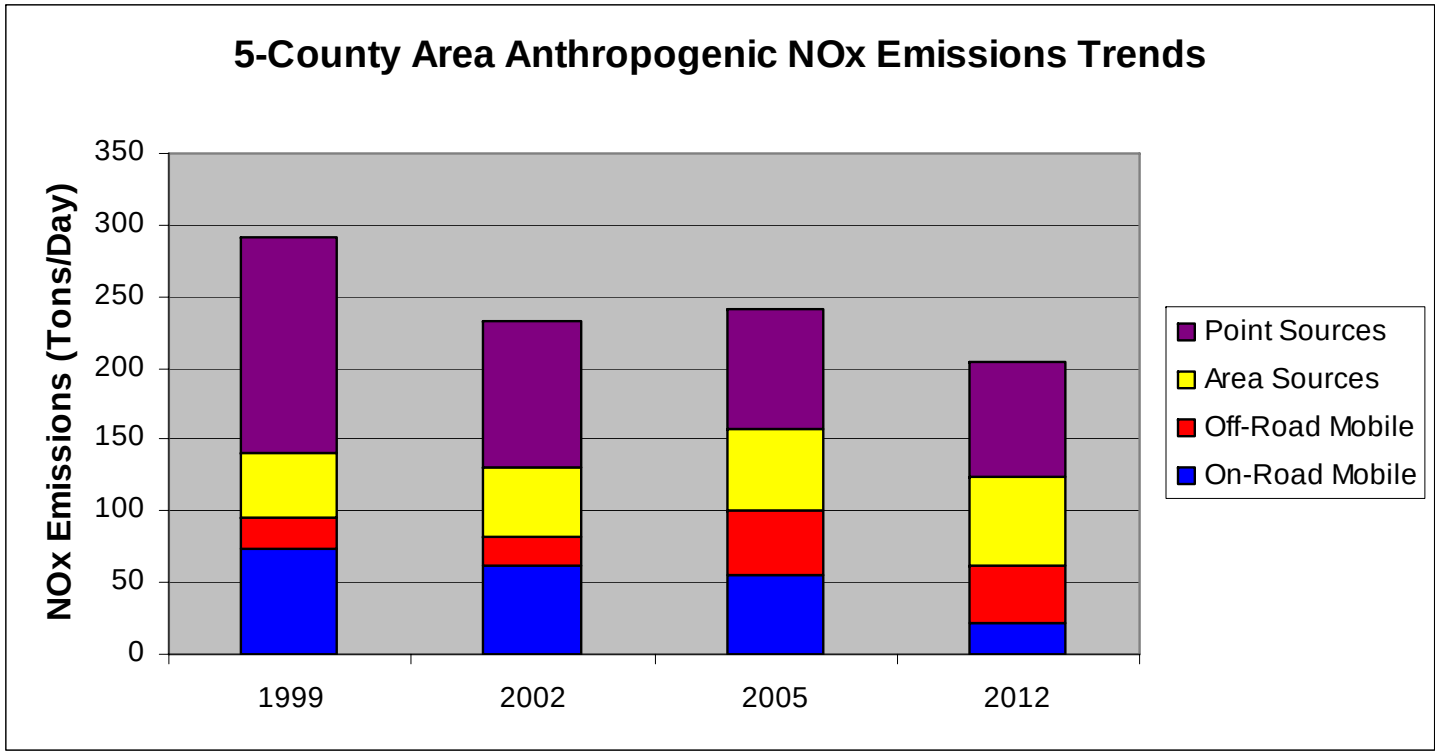
2012 Emission Inventory Development

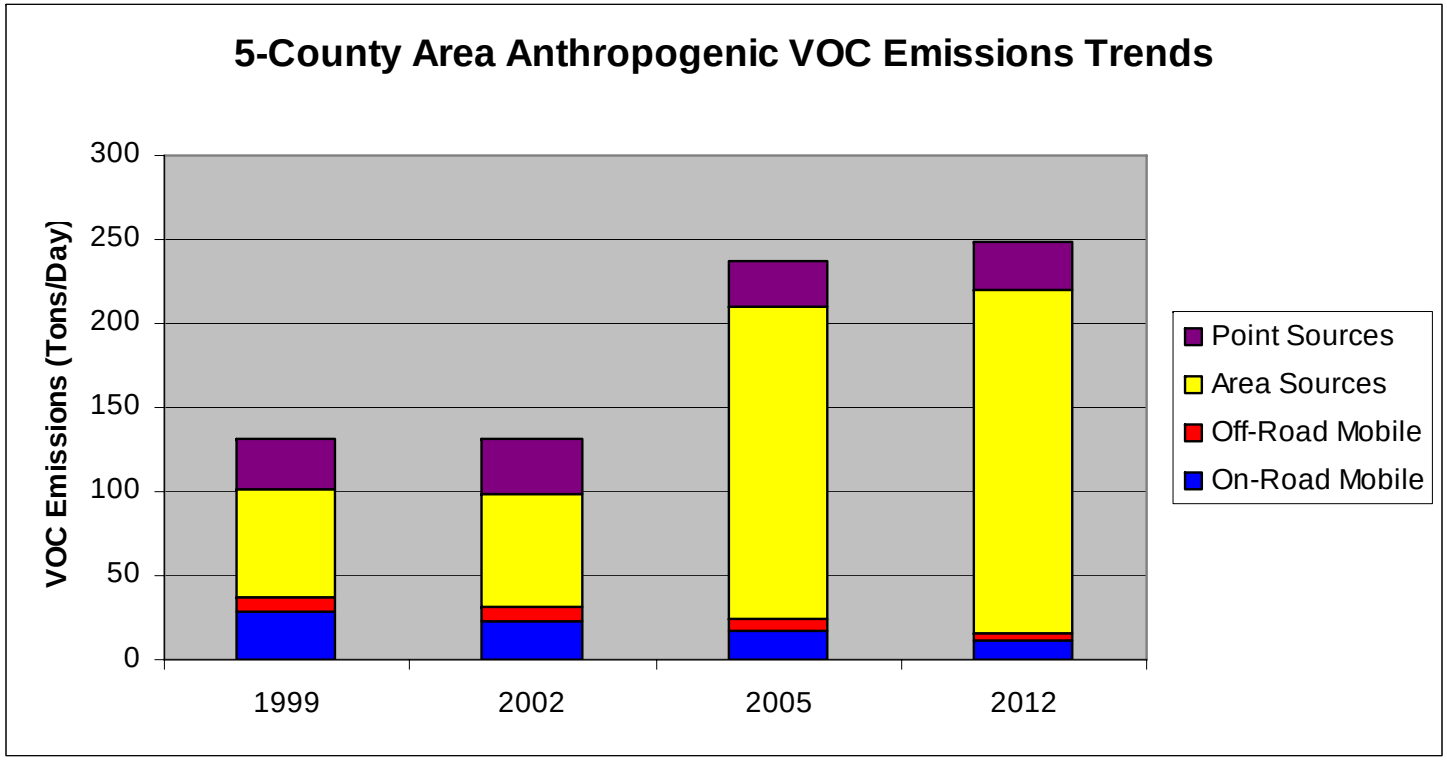
- 2012 emission inventory builds on prior TCEQ efforts
  - TCEQ is modeling 2018 for the Houston SIP
  - TCEQ has developed 2012 data for some source categories (on-road mobile, area sources)
  - Adapted TCEQ 2018 inventory to 2012 for remaining components of inventory
    - Point sources (CAIR), non-road mobile sources (TexN, TxLED)
    - TERP
- Next, add inventory improvements specific to Northeast Texas

NOx Emissions Trends in 5-County Area



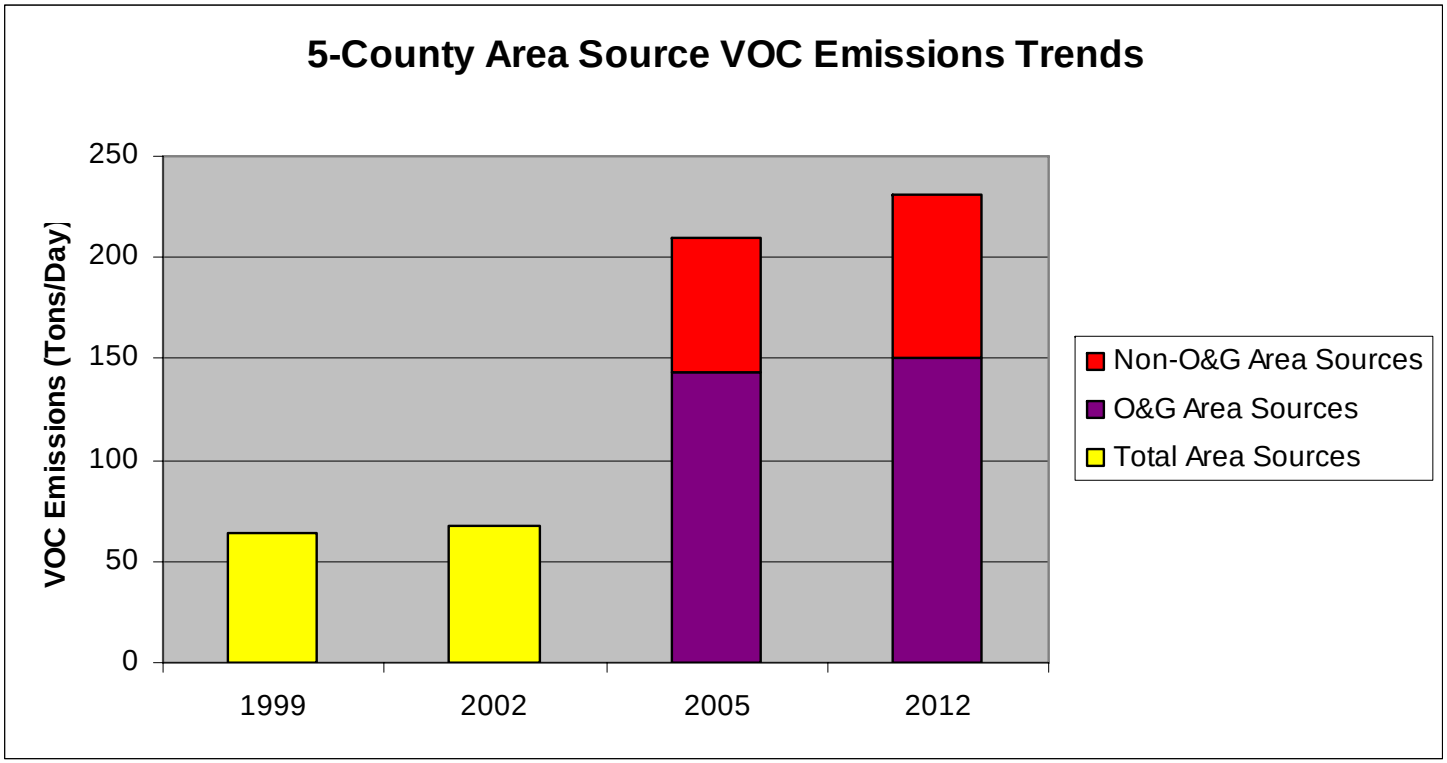
- Overall decrease in NOx emissions 2005 to 2012
  - On-road and off-road reductions, slight decrease in point sources
  - Growth in area sources

VOC Emissions Trends in 5-County Area



- Large increase in area source emissions between 2002-2005, smaller increase 2005 to 2012
- 2002 oil and gas inventory from extrapolated 1999 Pollution Solutions inventory
  - Increase in natural gas development activity between 2002 and 2005, relatively flat between 1999 and 2002
- 2005 area source (including oil and gas) inventory from TCEQ

Area Source VOC Emissions Trends in 5-County Area



- 1999 and 2002 area source inventory oil and gas/non-oil and gas component breakdown not readily available
- Oil and gas sources dominate 5-County area source inventory
  - Small increase from 2005 to 2012

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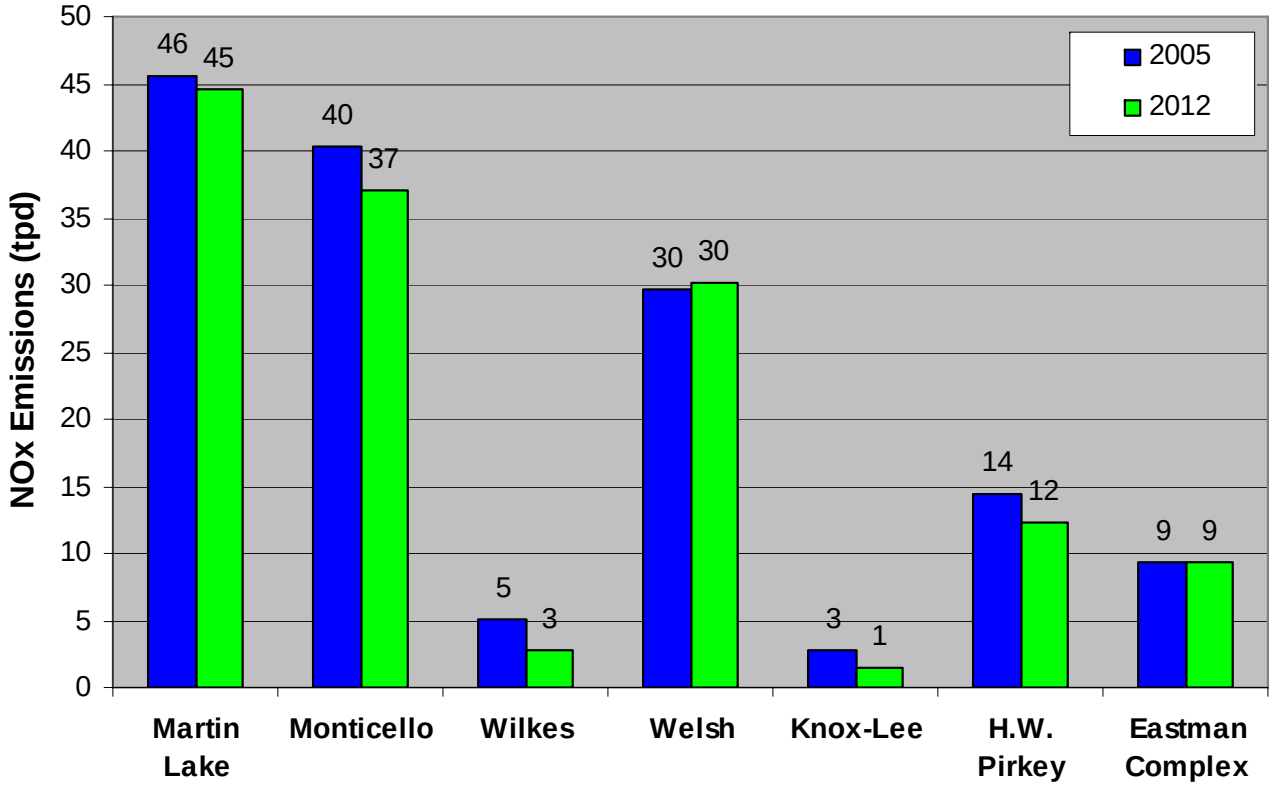
Refinements to Northeast Texas Emission Inventory

- Point Source Emissions
  - Request information on projected 2012 emissions
  - Integrate into emission inventory
  - Sources expected to come on-line by 2012 that are not in TCEQ 2018 inventory
- Off-Road
  - TERP reductions
- Oil and Gas Area Sources
  - Project local 2012 oil and gas production from TRRC data, use to scale O&G area source emissions
  - Effects of Haynesville Shale development

Northeast Texas Point Source NOx Emissions



- EGU NOx emissions decrease following implementation of Phase I of CAIR
  - Amount of decrease based on statewide budget for CAIR Phase I NOx emission reductions determined by TCEQ
  - Draft inventory to be refined based on estimates of 2012 emissions by EGU operators
- EGU VOC and CO emissions held constant between 2005 and 2012 per TCEQ

Texas Emissions Reduction Program (TERP)

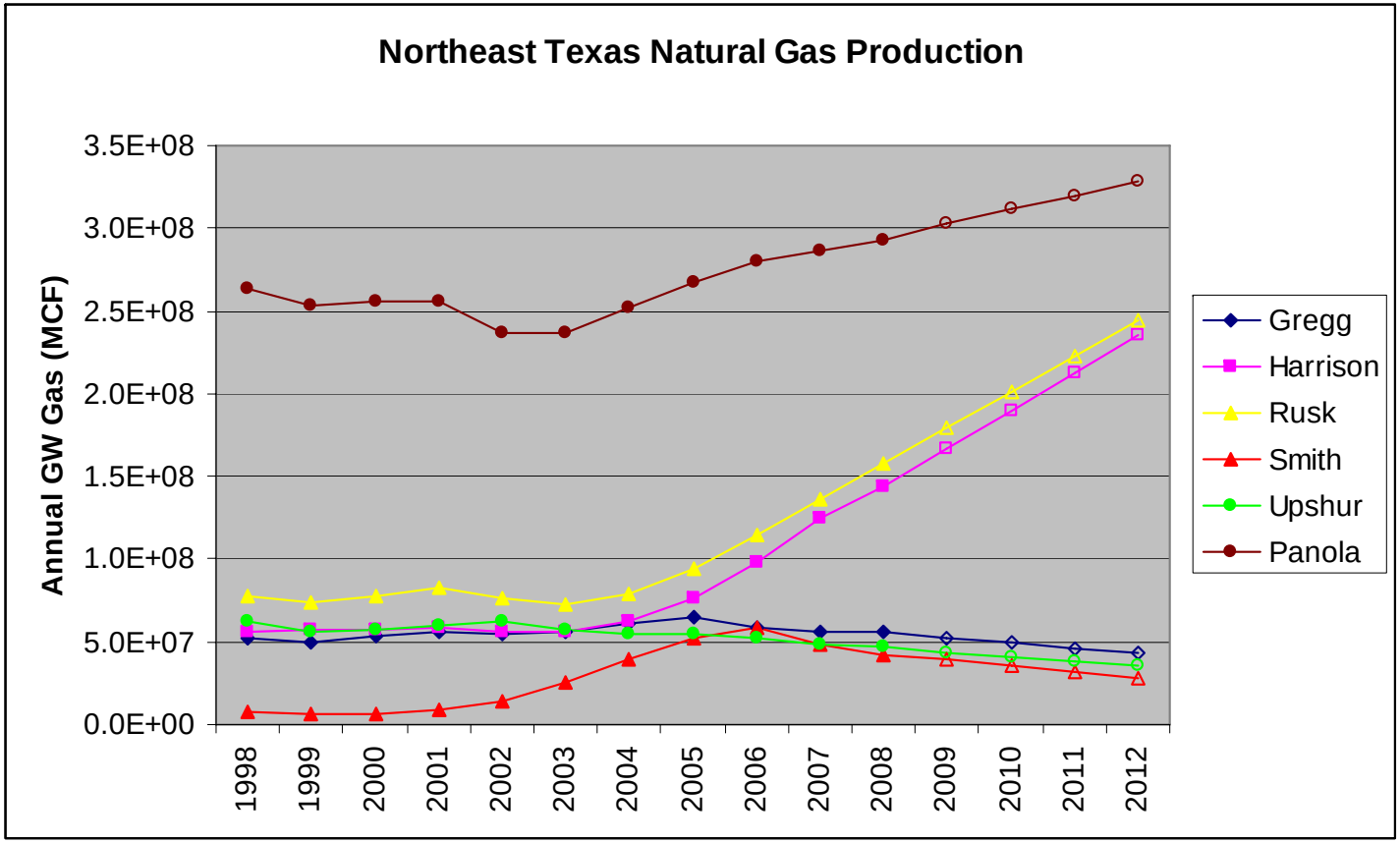
- TCEQ program aimed at reducing pollution from vehicles and equipment
  - Drill rigs, compressor engines, buses, fork lifts, etc.
- Offers grants to individuals, businesses and local governments to retrofit or replace polluting equipment
- Program is ongoing-more information and application available at:

  http://www.tceq.state.tx.us/implementation/air/terp/

TERP Reductions in 5-County Area

- To date, NETAC area has received funding for $30,401,434 for 99 projects totaling 5322 tons of NOx
- Examples of projects funded:
  - Locomotive switcher
  - Forklifts, dump trucks, haul trucks, excavators, tractors
  - Oil and gas equipment (drill rigs, frac units, compressors)
- TCEQ calculates the NETAC area NOx reduction in 2012 to be 2.9 tons NOx/day

O&G Area Source Projection



- Data from TRRC-open symbols indicate extrapolated values
- Linear extrapolation of 2005-2008 production through 2012
- Use production to scale NE Texas 2005 area source oil and gas emission inventory to 2012

Haynesville Shale Emission Inventory

- What are the ozone impacts of development in the Haynesville Shale?
- Model low, medium and aggressive scenarios
- Projections are highly uncertain, so treat as a sensitivity test
- Additional detail in Haynesville Shale Inventory report/presentation

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Control Strategy Development

- Begin with future year emission inventory with no additional local controls
- Project future year design values in Northeast Texas using EPA MATS tool
- Does the modeling indicate a need for additional local controls?
- If so, develop control strategies in concert with the TCEQ and NETAC and then model ozone impacts of proposed controls

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Acknowledgements

We thank Chris Kite, Jim MacKay, Marvin Jones, and Ronald Thomas of the TCEQ for their assistance in the development of this inventory