

OTC Annual Meeting

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Lord Baltimore Hotel  
Baltimore, Maryland

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Update



# Outline

- Update on Committee efforts
- Update on completing Charge
- Moving Forward- Next steps for the SAS Committee



# Charge to the Committee

## LARGEST CONTRIBUTOR ANALYSIS

Using the most recent emission inventory data available to:

- Identify the largest individuals and groupings of NO<sub>x</sub> emitters *within states where that state* contributes at least 1% of the 2008 ozone NAAQS of 75 ppb to OTC states;
- Identify emission sources with the highest short-term emissions of NO<sub>x</sub> and VOC;
- Evaluate real world achievable NO<sub>x</sub> emission rates across load ranges to adjust long and short term expectations for emission reductions.
- Develop individual state EGU NO<sub>x</sub> emission rates achievable, considering reasonable available controls.

## DISTRIBUTED AND EMERGENCY GENERATOR INVENTORY

Obtain information from system operators concerning the location, operation and emissions of all units that participate or plan to participate with the system operator to analyze the air quality impact of these engines and make recommendations for potential control strategies to the Commission.

# Largest Contributor (EGU) Analysis

EGU Workgroup posted the draft Whitepaper of the EGU Emissions Inventory Analysis for the OTC Modeling Domain for stakeholder comments on the OTC website in April, Workgroup is currently reviewing stakeholder comments

The draft EGU Emissions Inventory Analysis Whitepaper includes:

- Analysis of 2011 and 2012 state level ozone season EGU NO<sub>x</sub> emissions (tons) and ozone season state average EGU NO<sub>x</sub> emission rate (lb/mmBtu) data.
- Analysis 1 - NO<sub>x</sub> controls and EGU retirements
- Analysis of Short Term (Hourly) EGU NO<sub>x</sub> Emissions - 2012
- Analysis of daily EGU NO<sub>x</sub> emissions during the 2011 Ozone Season including emissions, fuel type, and temperature charts.
- “Coal SCR Scorecard” Analysis - 2011 & 2012
- Recommendation for modeling of Short Term NO<sub>x</sub> emission limits for EGUs

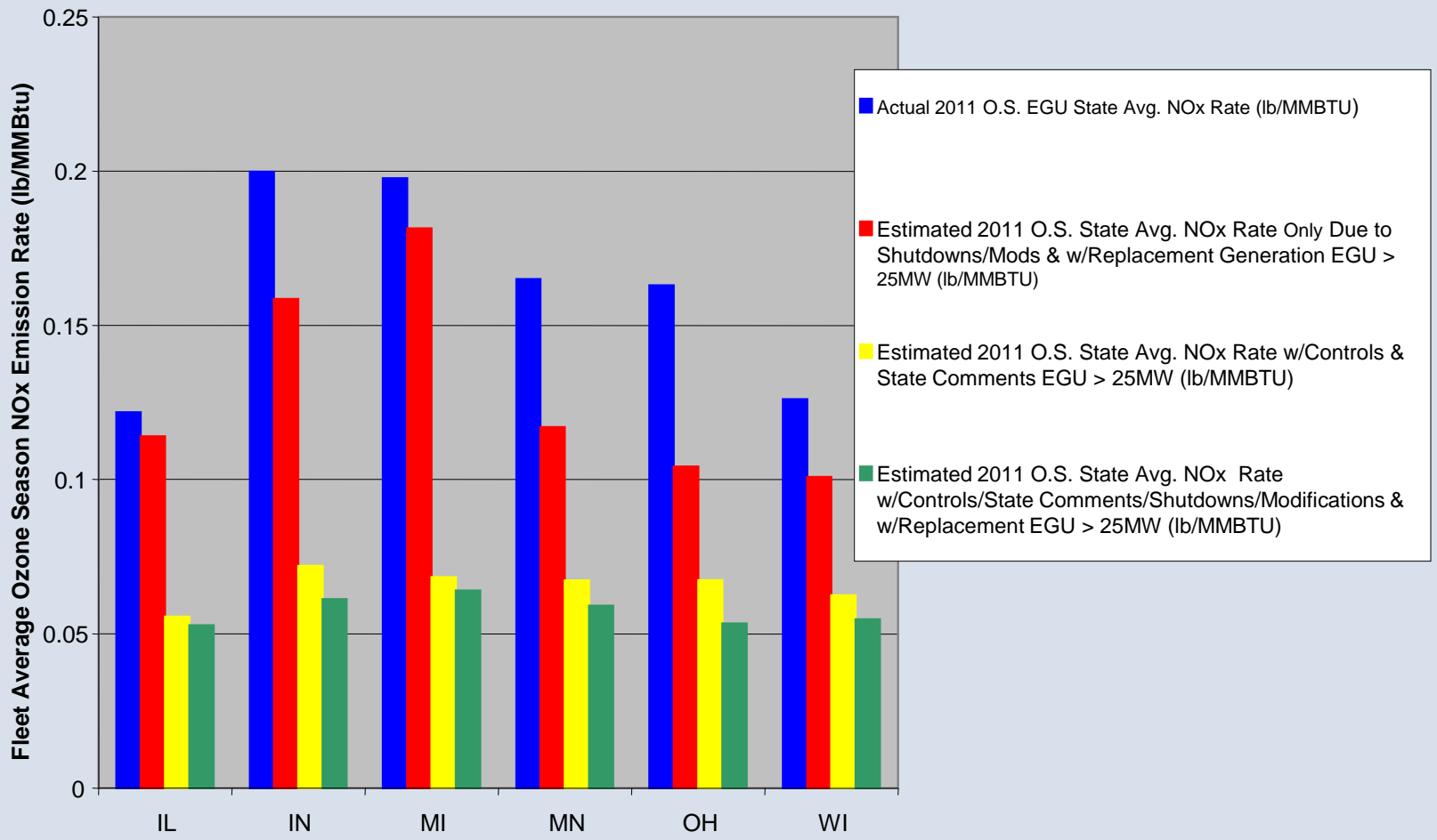
# Largest Contributor EGU White Paper

## Analysis 1: Reasonable cost-effective Emission Control Technology

- Analysis 1 demonstrates that significant NO<sub>x</sub> reductions can be achieved through the application of commercially available, cost effective controls, beyond what is achieved through retirements and fuel switching.

# Estimated Impact of Coal Fired EGU Retirements and Analysis 1 NOx Controls on Ozone Season Fleet Average NOx Emission Rates ( LADCO STATES)

**DRAFT**



# Largest Contributor EGU White Paper

## Analysis 2: Hourly EGU NO<sub>x</sub> Emission during a High Ozone Period

- The NO<sub>x</sub> emission rates from a number of EGUs were greater during this period than would be expected from EGUs with the pollution controls reported to be installed on those EGUs.
- Many EGUs were cycled on and off line during the period to meet the grid's electric demand, including a number of coal-fired EGUs.
- During peak hours, for states subject to the CAIR ozone season NO<sub>x</sub> program, coal- and natural gas-fired EGUs were responsible for the greatest heat input, with coal-fired EGU contributing approximately 79% and natural gas-fired EGUs contributing approximately 15% of the total NO<sub>x</sub> mass emissions.

# Largest Contributor EGU White Paper

## Analysis 3: Daily NO<sub>x</sub> Emissions during the Ozone Season

- Majority of EGU NO<sub>x</sub> emissions on HEDD in the OTR and LADCO were from coal-fired units.
- NO<sub>x</sub> emissions from diesel and residual oil units contribute significantly to poor air quality on HEDD in the OTR but not in LADCO.



# Largest Contributor EGU White Paper

## Analysis 4: “Coal SCR Scorecard”

- Many EGU’s with installed pollution control devices (e.g., SCRs) were operating during the 2011, 2012, and 2013 ozone season at NO<sub>x</sub> rates higher than previously demonstrated, and this behavior varies from state to state.

# State Rules Summary

## Short Term NOx Limits for EGU Boilers & Turbines (Analysis 5)

- These Short Term NOx Limits listed as “Current Thinking” not intended to reflect technological edge of NOx control capability, but rather to represent NOx control retrofit capability for much of the EGU Industry
  - Alternative compliance means may be necessary for some existing units that may not be able to achieve these NOx rate limits with RACT controls
- State rules included in analysis are from CT, DE, NH, NJ, NY & WI  
EGU boiler NOx limits in state rules – 24 hr avg. (rolling avg. or calendar day avg.)
- EGU turbine NOx limits in state rules varied from state to state (1hr avg., 24 hr avg, 30 day rolling avg.)

# NEXT STEPS FOR EGU SUBGROUP

- Finalize OTC EGU Emissions Inventory Analysis Whitepaper
- Workgroup review of results from preliminary ERTAC model runs on NOx reductions if Analysis 1 controls were applied and Ozone benefits from NOx reductions due to EGU retirements
  - Prepare data for ERTAC model run on NOx reductions if Short Term NOx limits were applied

# EMF Project

## What are EMF and CoST?

- **EMF** is a USEPA tool to manage and quality assure emission inventories
- **CoST** works with EMF inventories to model the effect and cost of control strategies for point, area, and mobile sources.

## Why implement a regional EMF and CoST? – In-house capability:

- Annual inventory projection
- Analyze effectiveness and cost of strategies
- Project base year point & area emissions for SIP quality modeling
- Prepare SMOKE-ready input files for multiple years

# EMF IS A BOX FOR INVENTORIES

Easy access to inventories - database

Inventory management tools:

- Inventory summary
- Plot sources on maps
- Quality assurance & documentation
- Analysis (HEDD, Compare etc)
- Projection to future years
- Cost and impact of control strategies (CoST Tool)
- Convert to modeling files
- Vary the time step of inventories (from annual to daily, seasonal)

# Where are we right now?

- **DONE** – MARAMA & OTC provided funding.
- **DONE** - EMF set up on Amazon Cloud.
- **Underway** – MARAMA uploads 2007/2011/2018/2020 datasets
- **Underway** – Developing growth & control factors through 2035
- **Underway** - Seven training webinars for members
- **Next step** - EMF code modification to vary the time step of inventories (from annual to daily, episodic or seasonal)

# Distributed and Emergency Generator Inventory

- OTC pursuing strategy of using state authority to gather information on DR engines
- OTC looking into how to account for Demand Response emissions in modeling scenarios



# Other SAS Committee Updates

## Consumer Products Rule

- OTC Sent EPA a request to adopt the OTC Consumer Products Model Rule as a National Rule
  - Available at <http://www.otcair.org>

## AIM

- Beginning process to develop a package to present to EPA asking for the adoption of the OTC AIM Model Rule as a National Rule.

## Vapor Recovery

- Continue to look at ways to improve Stage I
- Looking at Low Permeation Hoses, Dripless Nozzles, and Pressure Monitoring and Management



# Next Steps for the Committee

- Continue to evaluate EGU NO<sub>x</sub> real world emission data including daily EGU NO<sub>x</sub> emissions during ozone season episodes and HEDD days
- Use Largest Contributor analyses in ERTAC EGU modeling
- Look at ICI Boiler Emissions,
- Recommend using individual state authorities to collect data from demand response units
- Continue developing the AIM model rule to send to EPA.
- Continue to evaluate Vapor Recovery strategy options.
- Continue to provide an economic impact assessment of each new or significantly revised strategy that is presented to the Commission for action or consideration

# Questions?

