

# Ozone Transport Commission Stationary and Area Source Committee Update

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OTC Fall Meeting  
November 10<sup>th</sup>, 2010  
Boston, MA

# SAS Committee Activities

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- March 2010, OTC Committee Meeting
  - Presented draft Model Rules for several stationary and area source sectors
  - Sought additional stakeholder comments
- June 2010, OTC Annual Meeting
  - Presented Stakeholder comments
  - Committee made several recommendations to the Commission
- September 2010, OTC Committee Meeting
  - Presented draft Model Rules on Stationary Generators, HEDD, Low Solvent Degreasers
  - Sought stakeholder comments

# Accomplishments

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- [Model Rule](#) Oil & Gas EGU Boiler NOx
- [Model Rule](#) Large Above Ground Storage Tanks
- [Model Rule](#) Small Boilers & Heaters
- [Model Rule](#) Architectural & Maintenance Coatings (AIM)
- [Model Rule](#) Auto Refinishing
- [Model Rule](#) Consumer Products
- ICI Boiler Recommendation
- EGU National NOx Cap Recommendation
- Comments on EPA's Transport Rule, Boiler MACT and RICE NSPS

# Updates on Measures

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- Latest Completed Model Rules
  - Stationary generators
  - HEDD turbines
- Other Measures Under Review
  - Low Solvent Degreasers
  - Municipal waste incinerators
  - Energy efficiency / renewable energy
  - Stage 1 and 2 controls
  - Coal Fired Boilers Serving EGUs
- Revisiting Old Actions
- New Control Measures

# Stationary Generators

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## Stakeholder Comments

- Generally pleased that OTC included placeholder that allows states to operate generators for emergency purposes in conjunction with each states' ISO program. (Blue Skies, EnerNOC, Pfizer)
- Edit definition of “stationary” to match EPA’s definition in 40 CFR 89, to match EPA’s definition of 12 months. (Blue Skies, EMA, Pfizer)
- Would like to clarify that Demand Response does not prevent an emergency engine from participating in an ISO emergency program without losing its “emergency engine status.” (Blue Skies, EnerNOC, Pfizer)
- Emissions standards proposed for non-emergency engines may not be technically feasible in some cases, and may not be cost effective (e.g., may require aftertreatment devices including SCR for lean burn engines). Want simple NSPS standards instead. (DoD, EMA)
- Initial notification & recordkeeping requirements may be redundant and unnecessary. (DoD, EMA)
- 10 min requirement for emission controls to begin is too short. (EMA)

# Stationary Generators

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- Consistent definition of “emergency”
  - Draft includes new section for state-specific reference for operation in conjunction with ISO program.
  - Does not state that “demand response” is okay - ISO program should incorporate voltage reductions.
- Approach for new engines
  - Harmonizing timelines with NSPS
  - Focusing on specific NO<sub>x</sub>, NMHC (hydrocarbons), PM and CO limits



# Stationary Generators

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- **Definition of “stationary”**
  - Reference to “nonroad engine” in 40CFR89.
  - Defines stationary as 12 months.
- **Reporting requirements**
  - Now for non-emergency generators only.
  - Included as “optional” language for states.
  - Records must still be kept for 5 yrs.
- **CO standards**
  - Model rule only references CO standards of RICE NESHAP (ZZZZ) as a reminder.

# High Energy Demand Days

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## Stakeholder Comments

- Stakeholders would like some changes to the definition of HEDD CTs to a more specific classification.
- Believe that there needs to be a differentiation in emissions limits for simple cycle and combined cycle turbines.
- Want to change the definition of “start up” and “shut down,” changing both periods from a 10 minute limit to a 60 minute limit.
- Believe that onsite personnel and third party vendors provide a “higher level of reliability” than a manufacturer’s maintenance schedule.

# High Energy Demand Days

- **HEDD**

Model Rule Focuses exclusively on turbines, sets the range at 5 to 15

megawatts, and provides definitions for HEDD conditions.

- Applicable to any natural gas, distillate oil fired turbine that is an HEDD Combustion Turbine (HEDDCT) capable of generating 5 MW or greater.
- Sets standards for subject HEDD turbines that qualify as "Peaking Units," periodic emission monitoring must be conducted for NO<sub>x</sub> and CO



# Low Solvent Degreasers

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## Solvent Degreasers

- The 2011 OTC Model Rule for Solvent Degreasing is based on an amalgam of two California air district rules; Rule 1122 of the South Coast Air Quality Management District (SCAQMD) as amended May 1, 2009 and Santa Barbara County Air Pollution Control District Rule 321 (for Remote Reservoir Cleaner only) as amended September 18, 1997.

### Stakeholder Comments

- Doing outreach to reach stakeholder groups over the next several weeks to help develop final model rule.



# Municipal Waste Incinerators

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- Municipal Waste Incinerators
  - Waiting for EPA MACT
    - Pending federal proposal
  - Facility specific limits
  - Establish 24-hour and annual limits
  - Exceptions for start up, shutdown and malfunction



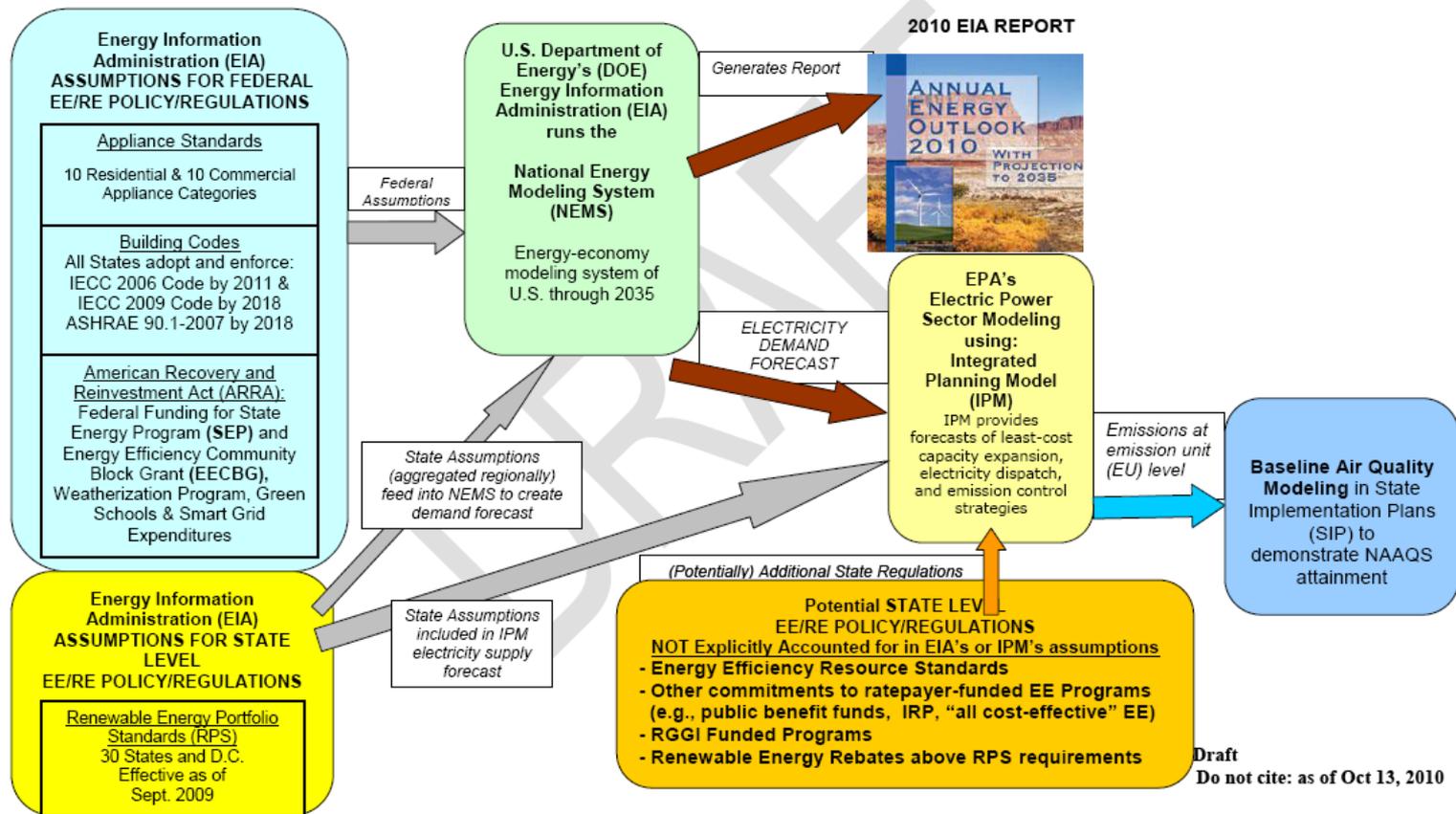
# Energy efficiency / renewable energy

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- SIP issue, being discussed with EPA on modeling and inventory information and overlap with GHG plans
- Potential revisions to EPA guidance
- Developing pilot projects
- NESCAUM is leading a consolidated effort working with EPA

# Energy efficiency / renewable energy

## Accounting for Energy Efficiency & Renewable Energy Policy in the Electric Power Sector Baseline



# Stage I/II Vapor Recovery

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- Awaiting EPA's rule on widespread use
- Examining additional reduction opportunities
- Collecting additional data from states
- Evaluating vendor data
- Seeking input
- Meeting with stakeholders

# Coal Fired Boilers Serving EGUs

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- Evaluating EPA's transport rule
- On hold until after review

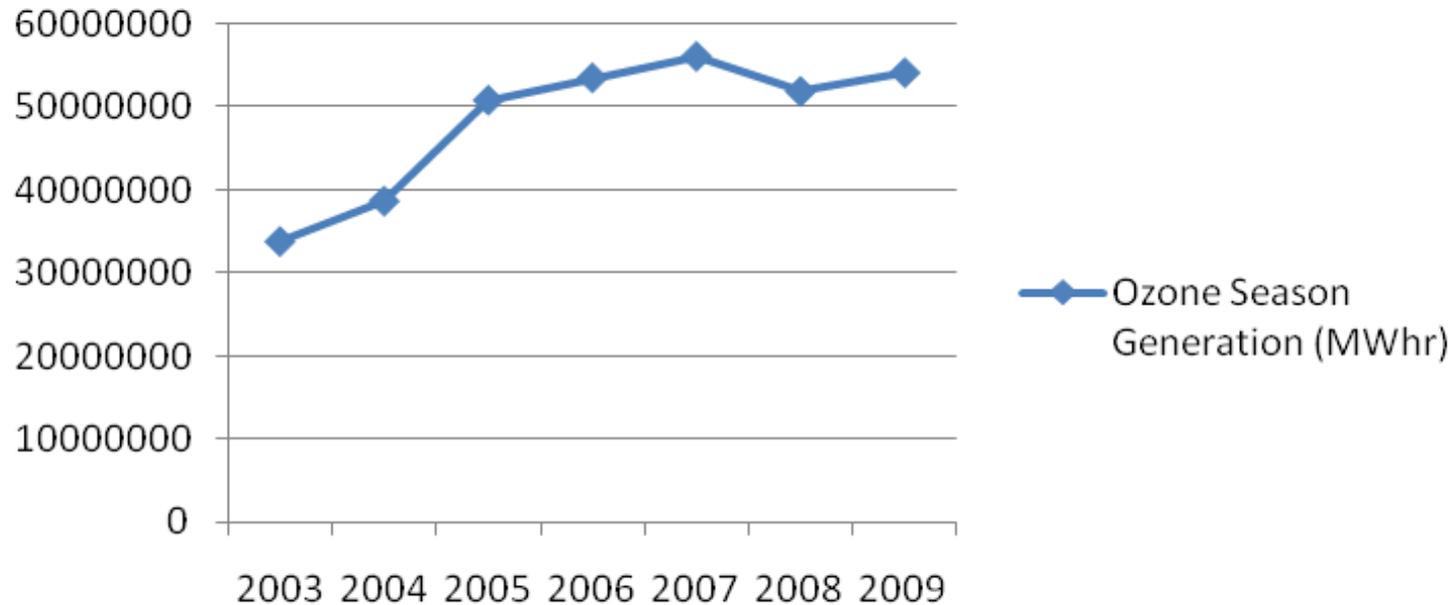
# SAS Committee Next Steps

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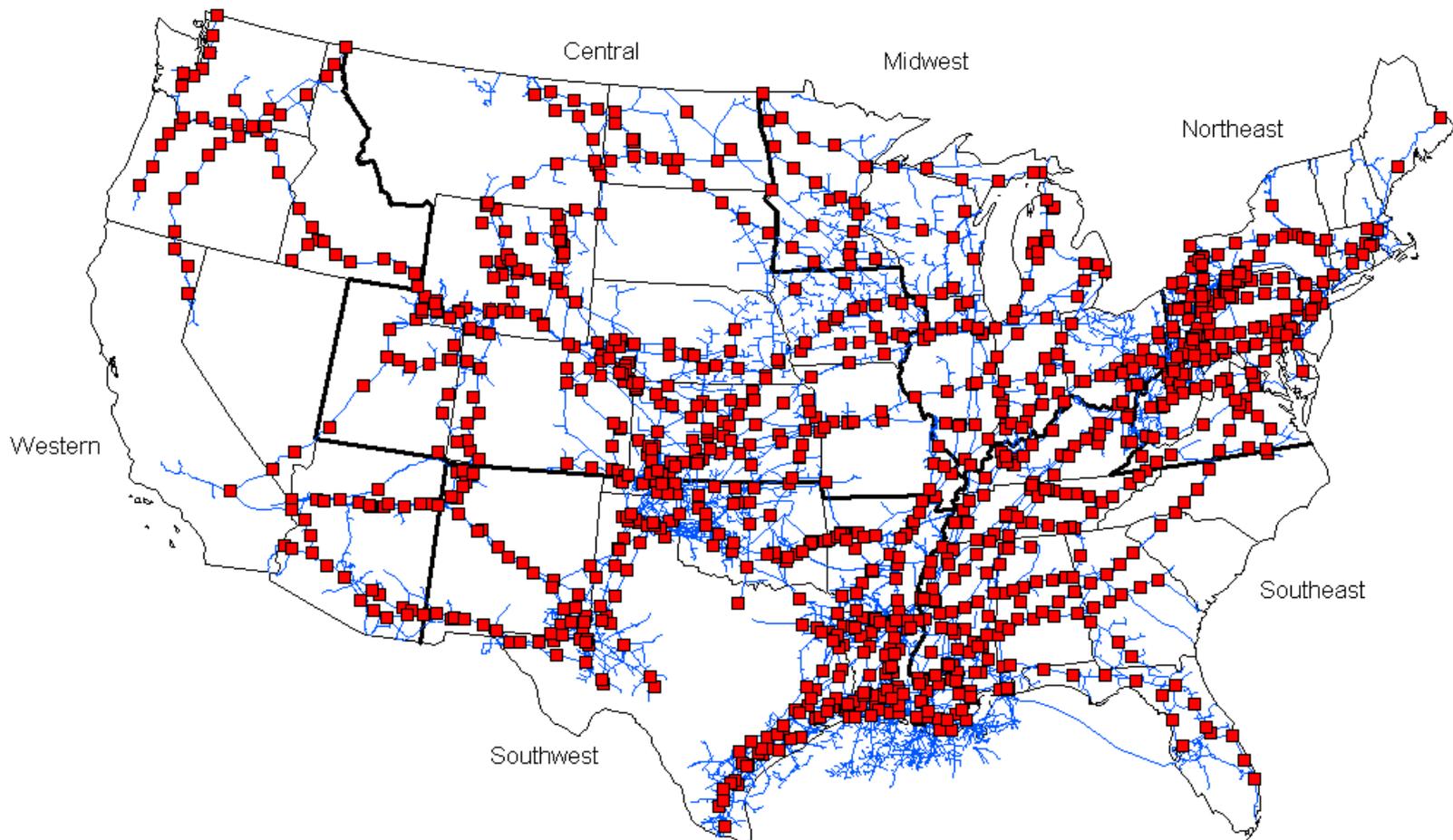
- Continue work on the remaining control measures from original list
- Identify new measures
  - Natural Gas Compressor Facilities

# Interstate Mainline Natural Gas Compressor NOx Emissions

## Gas Fired EGU Ozone Season Generation (OTR) (MWhr)



- Use of gas-fired electric generation in the Northeast has increased during the ozone season.
- Natural gas pipeline compressors must load to support electric generation natural gas demands.
- Generation data above is from USEPA CAMD for the OTR states, excluding VA.



## Interstate Natural Gas Mainline Compressor Stations - 2006

- In excess of 1200 compressor stations.
- In excess of 16,880,000 HP in total fuel burning compressor prime movers.
- In excess of 295,000 HP in fuel burning compressor prime movers in the OTR.
- FERC has approved an additional 2,418,000 compressor HP since 2007.

**2003 Pipeline Research Council International Data**  
**US Natural Gas Pipeline Compressor Station Combustion Drives**

<u>Combustion Unit Type</u>	<u>US Total Units</u>	<u>Avg. Age (2003)</u>	<u>Avg. H.P.</u>
2-stroke Leanburn Recip	2955	42	2113
4-stroke Leanburn Recip	1059	33	1844
Rich Burn Recip	1672	32	589
Combustion Turbine	1016	24	6121

- Most compressor stations have compressors operating 24hr/day, 365 days/yr.
- Typical compressor stations have parallel compressor units for increased operating range.
- Reciprocating engine prime movers are often preferred for operational/flow control flexibility.
- PRCI has indicated that the average annual capacity factor for a compressor prime mover is 40%
- Many of the legacy prime movers predate otherwise applicable NSPS and OEM NOx controls.

# Natural Gas Compressor Stations

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From 2007 MARAMA inventory data:

- It is estimated that in the OTR there were 119 combustion turbine mainline natural gas compressor prime movers and 488 reciprocating engine mainline natural gas compressor prime movers.
- A review of approximately 20% of the permits for OTR natural gas compressor facilities indicated a range of permit NO<sub>x</sub> emissions limits for reciprocating engines prime movers from “no limits” to 13.3 g/bhp-hr to 0.5 g/bhp-hr.
- That review of 20% of the permits for OTR natural gas compressor facilities also indicated a range of permit NO<sub>x</sub> emissions limits for combustion turbine prime movers of 166 ppmvd @ 15% O<sub>2</sub> to 25 ppmvd @ 15% O<sub>2</sub>.
- The MARAMA data was used to estimate a total 2007 annual NO<sub>x</sub> emissions from these units of approximately 14,274 tons.
- A review of industry information indicates that there have been a significant number of new natural gas pipeline compressors installed in the OTR subsequent to 2007.

# Natural Gas Compressor Stations

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Industry information indicates that there are often NO<sub>x</sub> controls that can be retrofit to the legacy engines. The industry information also indicates that layered control strategies appear to be effective in some cases.

- There does not appear to be any single comprehensive database for these units. Required information has to be extracted from a combination of MARAMA sources, industry data, and operating permits. Considerable work will be required to assemble a database, if desired.
- There appears to also be a potential for non-trivial NO<sub>x</sub> emissions from compressor prime movers used in the field collection/gathering of natural gas and the movement of the natural gas to process facilities and injection into the mainlines. This will be larger component as gas fields are more fully developed, such as the massive Marcellus shale gas field. This category has not been included in this evaluation to date but may be worthy of additional investigation to determine the magnitude of No<sub>x</sub> emissions associated with this activity.

# SAS Committee Next Steps

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- Revisit old actions
  - ICI Boilers
    - No action by EPA on OTC/LADCO recommendation
  - Consumer Products
    - Product specific discussions
    - Thinners
- Sector specific calls with stakeholders
- Develop modeling inputs for the measures



**Any Questions?**