

NO_x Emissions from Combustion

Breakout Group #1

Control Strategies

- **Point sources – electric utilities**
 - Approx. half of capacity at 90% (more than half of generation); could step up to 95%.
 - We agreed that the idea that some fraction (~10%) of EGU's have no controls, and we need to get better numbers for this. Bringing these to 90% would get us substantial reductions in NO_x emissions. Both EPRI and EPA will do an analysis for the INC.
 - Reinstate CAIR.
 - Should EPA consider NO_x/unit energy provided (N_r/J) be a criterion for EGU's for industry cap? Just fossil sources or include all fuels?
 - Year-round NO_x controls are appropriate for environmental problems beyond O₃.

Control Strategies

- **Mobile sources – on road**

- 90% reduction for on-road; need to consider transition time for fleet change over if higher reductions are needed.
- The cap on total NO_x from vehicles is not falling (note: gNO/mile is criterion).

- **Mobile sources – off road**

- SCR on diesels (trucks and locomotives) with urea; for locomotives can achieve just under 90%, but it's expensive.
- There is low-hanging fruit in vehicles such as construction equip.
- There is no marginal increase in NO_x emissions for switching some sources to electric, such as fork lifts, alternative power for ships in port and plug-in hybrids (EPRI has shown that NO_x and ammonia would be reduced in urban areas with 20% of miles traveled)
- 30,000 locomotives in the US not. ~70% have some control. ~13-18 g/bhp. Tier II is 5.5 g/bhp; Tier IV is 1.3 g/bhp. Lifetime of diesel 5-10 yr for overhaul. Regulations are in place already and regulating locomotives is a better economy of scale with reduction (more freight carried).
- Aviation? (source not addressed)

Other NO_x controls?

- Conservation.
- Increased fuel efficiency
- Nr from ag. practices
 - No-till ag reduces soil emissions and fuel-based.
 - Ag fires emit NO_x and NH₃.

Additional Standards

- Deadline for 2.0 Tg/yr reduction?
- Secondary standard for chemically reactive N = NO_y + NH_x.
- Begin monitoring immediately.
- Develop standards (NAAQS) for NO_y + NH_x or for NO_y and NH_x individually?
High temporal resolution vs. 24-hour?

