Air Quality Management Subcommittee
June 27-28, 2006
Atlanta, GA

Meeting Notebook Table of Contents

All materials included should be considered DRAFTS. These drafts are meant to guide discussions of the AQM Subcommittee and do not represent decisions or opinions made by the EPA, the CAAAC, or the AQM Subcommittee.

Air Quality Management Subcommittee Meeting
June 27-28, 2006
Meeting Agenda

Tuesday, June 27

8:30-8:45	Introductions and Welcome	Greg Green and Pat Cummins
8:45 – 9:45	Science to Help Define the Problem and Set the Right Priorities: The next NARSTO Science Assessment - The Technical Challenges (and Capabilities) of a Multi-Pollutant Approach to Air Quality Management in an Accountability Framework	Jim Vickery
9:45-10:00	Break	
10:00-11:30	Team 1: Presentation of Recommendations	
11:30-12:30	Lunch	
12:30-2:00	Team 2: Presentation of Recommendations	
2:00-2:15	Break	
2:15-5:00	Integration of Major Recommendations	
5:00	Adjourn	

Wednesday, June 28

8:00-9:00	Continued Discussion on Integration of Major Recommendations
9:00-10:00	AQM Challenges
10:15-12:00	Continued Team Discussions
12:00-12:30	Next Steps
12:30	Adjourn

For members not able to attend in person, there is a conference line for both days of the meeting
Conference Call Number: (866) 299-3188
Conference Code: 2025641663

HOTEL INFORMATION

Ritz-Carlton Atlanta
181 Peachtree Street
Atlanta, GA 30303
Reservations: (404) 659-0400 or (800) 241-3333

The Next NARSTO Science Assessment:

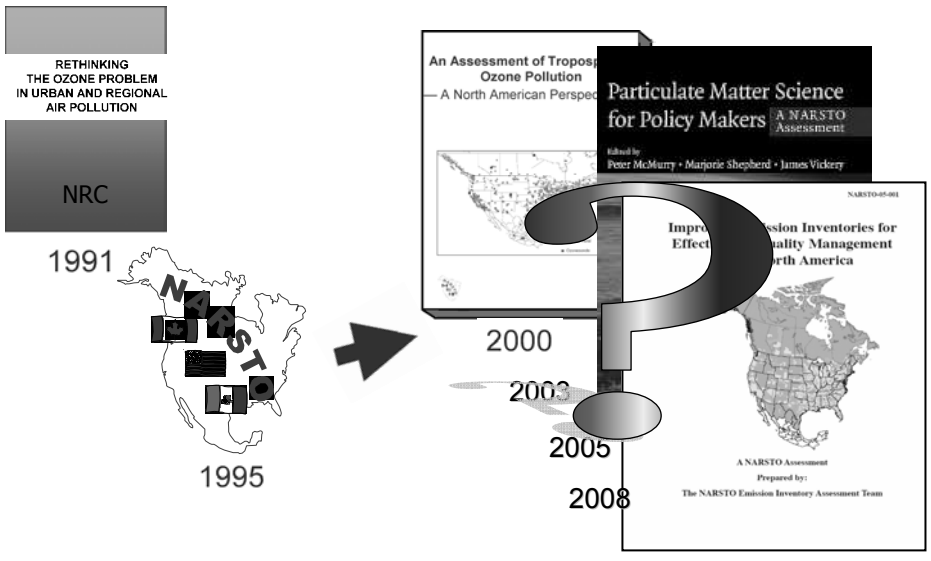
Science to Help Define the Problem and Set the Right Priorities

CAAAC, Air Quality Management Subcommittee
June 26, 2006
Atlanta, GA

Jim Vickery, Public Sector Co-Chair

William T. Pennell, NARSTO Management Coordinator

NARSTO, who we are and what we do



NARSTO Sponsoring Members

FEDERAL GOVERNMENTAL AGENCIES

ENVIRONMENTAL PROTECTION AGENCY (ORD & OAR), DEPARTMENT OF COMMERCE (NOAA), DEPARTMENT OF ENERGY, DEPARTMENT OF AGRICULTURE, DEPARTMENT OF INTERIOR, DEPARTMENT OF TRANSPORTATION, NATIONAL AERONAUTICS AND SPACE ADMINISTRATION, NATIONAL SCIENCE FOUNDATION, TENNESSEE VALLEY AUTHORITY,
ENVIRONMENT CANADA,
INSTITUTO NACIONAL de ECOLOGIA, INSTITUTO MEXICO del PETROLEO

SUBNATIONAL GOV'T ORGANIZATIONS

CALIFORNIA AIR RESOURCES BOARD, LAKE MICHIGAN AIR DIRECTORS CONSORTIUM, MIDATLANTIC REGIONAL AIR MANAGEMENT ASSOCIATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE ENERGY RESEARCH & DEVELOPMENT AUTHORITY, NORTHEAST STATES FOR COORDINATED AIR USE MANAGEMENT, TEXAS COMISSION ON ENVIRONMENTAL QUALITY,
ONTARIO MINISTRY OF ENVIRONMENT

PRIVATE INDUSTRY

AMERICAN PETROLEUM INSTITUTE, CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION, COORDINATING RESEARCH COUNCIL, DUNN-EDWARDS COMPANY, E.I. DUPONT de NEMOURS & COMPANY, FORD MOTOR COMPANY, GENERAL MOTORS CORPORATION

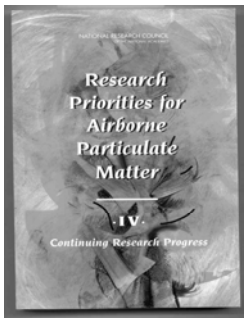
UTILITIES

EDISON ELECTRIC INSTITUTE, ELECTRIC POWER RESEARCH INSTITUTE, SOUTHERN COMPANY SERVICES INC.

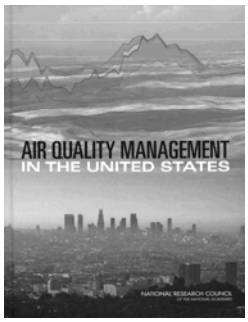
NARSTO Multi-Pollutant Assessment

- The proposal: ***The Technical Challenges of a Multi-Pollutant Approach to Managing Air Quality Under an Accountability Framework: A NARSTO Assessment***
- Response to 2005 Executive Assembly directive
  - Small working group reviewed / considered NARSTO multi-pollutant activity during 2005
  - Proposal submitted to the Executive Steering Committee (ESC) in December, 2005
  - Proposal was modified per ESC comments
    - "Let's hear from the potential users"

Why we're doing this now



2004

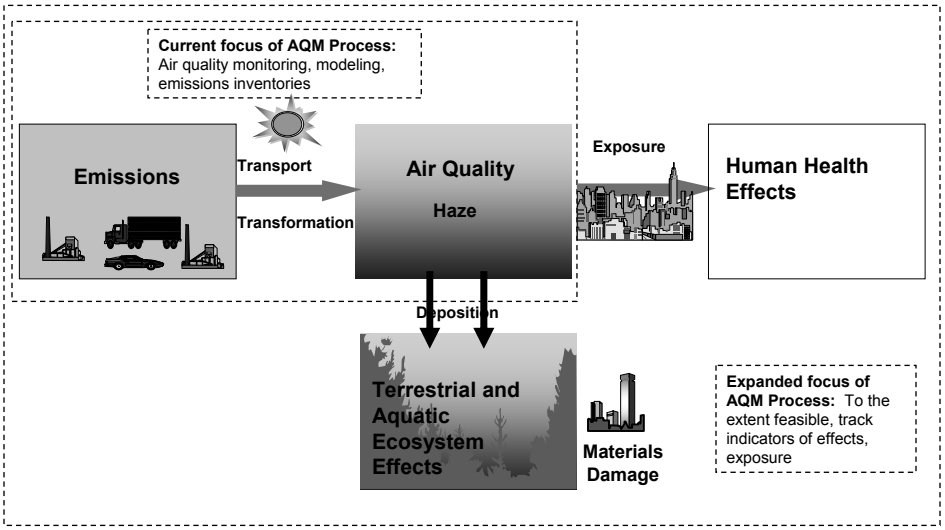


2004

National Research Council themes:

- **Integrated, multi-pollutant programs and research**
- **Accountability**

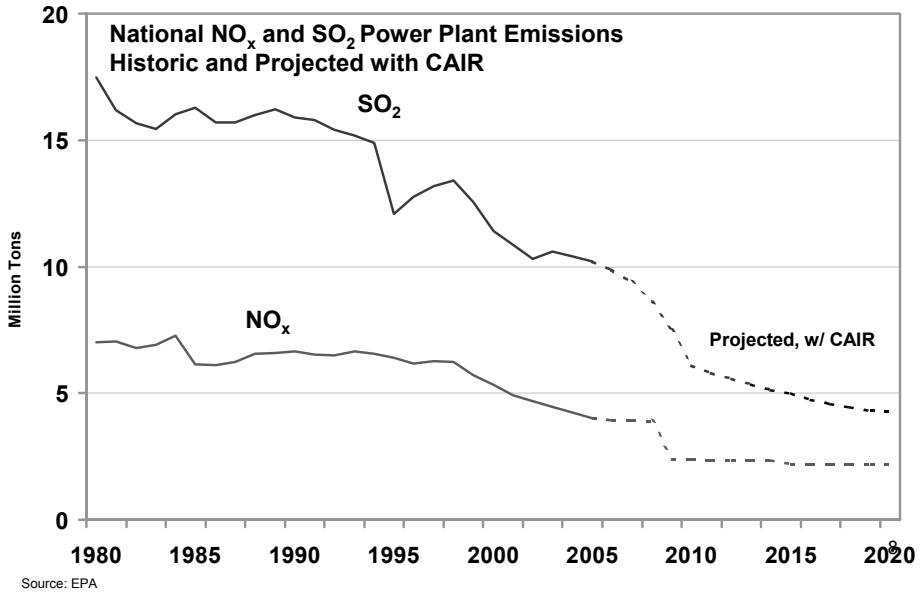
Air Quality Management Expanding Air Accountability



National/Regional Rules: multi-pollutant sector approaches

- Regional controls for major stationary sources
  - The NOx SIP call
  - The Clean Air Interstate Rule (CAIR) and Clean Air Mercury Rule (CAMR) (SO2, NOx, Hg)
- National rules for mobile sources
  - Tier 2 motor vehicle standards (VOC, NOx, SO2)
  - Heavy duty on-road diesel standards (PM, NOx. SO2)
  - Off road diesel standards (PM, NOx. SO2)
- State and local controls
  - PM and Ozone SIPs under NAAQS implementation

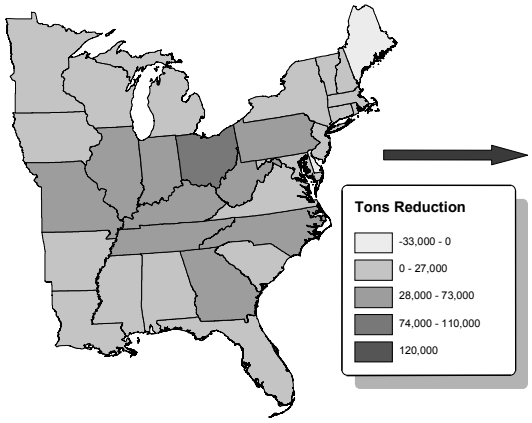
Big National reductions via CAIR



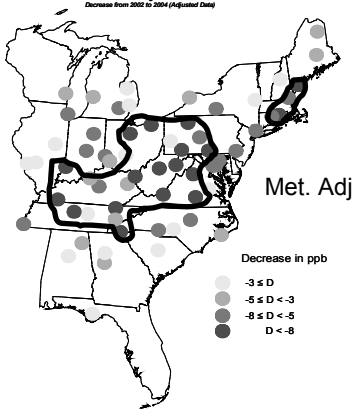
Source: EPA

Big regional impacts via NOx SIP Call

EGU NOx Tons Reduced



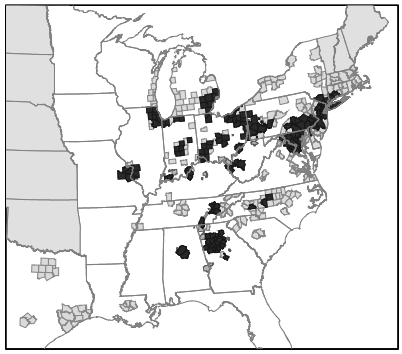
Decline in "Seasonal Average" 8-Hour Daily Maximum Ozone



Ozone decline downwind of major EGU NOx emissions reductions after 2002
Average rate of decline in ozone between 1997 and 2002 is 1.1%/year.
Average rate of decline in ozone between 2002 and 2004 is 3.1%/year.

CAIR and other programs greatly reduce transported ozone and Particle Pollution: residual nonattainment in the East -- 2015

Ozone and Fine Particle Nonattainment Areas (March 2005)	Projected Nonattainment Areas in 2015 after Reductions from CAIR and Existing Clean Air Act Programs



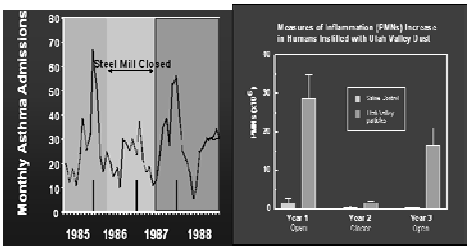
Nonattainment areas for 8-hour ozone pollution only
Nonattainment areas for fine particle pollution only
Nonattainment areas for both 8-hour ozone and fine particle pollution

These areas are a priority for PM/O3 programs – today

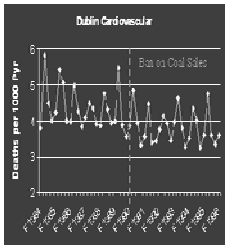
Projections concerning future levels of air pollution in specific geographic locations were estimated using the best scientific models available. They are estimations, however, and should be characterized as such in any description. Actual results may vary significantly if any of the factors that influence air quality differ from the assumed values used in the projections shown here.

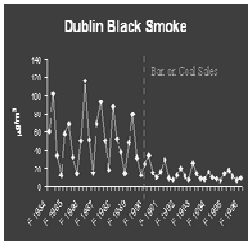
Local Intervention Impacts

Utah Valley: A Natural Experiment

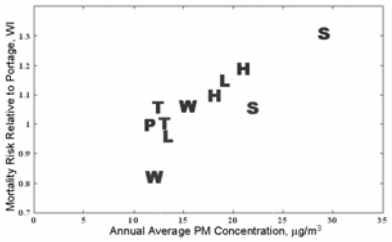


The Dublin Study: Evaluating the Impact of Air Pollution Regulation





Updated Harvard Six Cities Study



NARSTO Contribution in the AQM Context

- **AQM T1- G1- R1: Improve accuracy, robustness, and availability of environmental and health data**
  - **air quality data**
  - **emission inventories** and **air quality modeling**
  - **external partners**
- **AQM T1- G1- R2: Improve the priority setting process *(a relative risk, multi-pollutant approach)***
  - **multi-pollutant air quality plan**
  - **air quality health trends report**
  - **report on links of air quality and ecosystem health**
  - **new science to policy mechanism**
- **AQM T1- G1- R3: Improve accountability**
  - **air accountability framework**
  - **indicators**
  - **progress evaluation**
- **AQM T1- G2- R2: Move from a single pollutant approach to an integrated, multiple pollutant approach**
  - **framework for an AQMP**
  - **tools**
  - **new/ improved science**
  - **pilots, guidance, tools and data**
- **AQM T1- G3: Coordinate with other programs such as land use, energy, transportation and climate**.

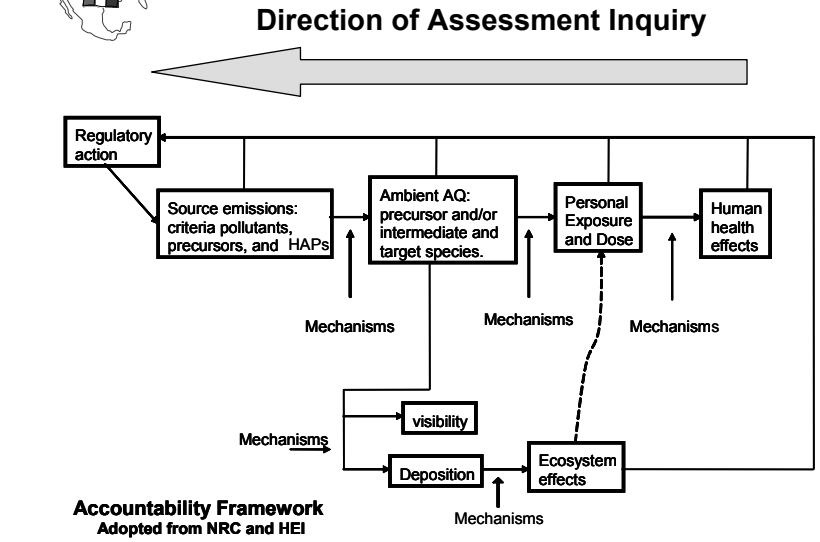
Air Quality Manager Needs
(A NARSTO View)

- In Canada and the U.S.
  - Means to measure progress toward air quality, public health and environmental goals
  - Means to be reassured that the goals are the right ones
  - Means to determine adjustments to existing emissions controls if progress / goals are not sufficient
- In Mexico
  - Information for policy / program development

Scope of Proposed Next NARSTO Assessment

NARSTO will perform an assessment of the technical challenges (including the adequacy of the data, measurement and modeling tools) and implications of a multi-pollutant approach to managing air quality under an accountability framework.

Approach



Accountability Framework
Adopted from NRC and HEI

Charge Statement

- **Charge 1**: In time to lay the foundations for a 2010 assessment of improvements in human health and ecological conditions,
  - Air quality scientists will work with exposure, health and ecosystem scientists to identify the air quality information needed to associate:
    - Air quality composition and concentration with health and environmental conditions, and
    - Source emissions with health and ecosystem effects.

Charge Statement – cont'd

- **Charge 2**: In time to lay the technical foundation for a 2010 assessment of progress in air quality improvement,
  - Identify the technical challenges to and the capabilities of monitoring networks and modeling systems to provide the information needed to understand effects of air quality on human and ecosystem health, including the technical challenges of:
    - Quantifying air quality changes of criteria, hazardous and precursor pollutants,
    - Determining the source emissions and meteorological factors responsible for observed air quality changes, and
    - Understanding the relationships between climate change and air quality.

Principal Tasks of the Assessment

1. **Identify health and exposure related air accountability assessment needs**
   Products
   - Prioritized technical monitoring and source apportionment needs from the health and exposure community
   - Atmospheric sciences assessment of the capabilities for meeting these needs
   - Identified course of action to fill the gaps
2. **Identify ecosystem related air accountability assessment needs**
   Products
   - Prioritized technical monitoring and source apportionment needs from the ecosystem science community
   - Atmospheric sciences assessment of the capabilities for meeting these needs
   - Identified course of action to fill the gaps
3. **Identify air quality accountability assessment data requirements, tools, and procedures**
   Products
   - Combined set of accountability needs
   - Assessment of the capabilities for meeting these needs
   - Recommendations for strengthening these capabilities
   - Description of the activities required to perform multi-pollutant assessments of progress in meeting air quality, public health, and environmental goals
4. **Produce assessment synthesis**

Task 1 **Identify Health and Exposure Related Air Accountability Assessment Needs**

- Workshop(s) involving human exposure scientists, health scientists, and NARSTO air quality scientists.
- What is needed to
  - Associate health and exposure changes with air quality and emission changes
  - Associate hazardous components and mixtures of air pollution and their sources, personal exposures and specific health effects (needed to evaluate standards)
- NARSTO AQ scientists assess the capabilities of monitoring and modeling to address these needs

Task 1 **Identify Health and Exposure Related Air Accountability Assessment Needs**

- Products
  - Prioritized technical monitoring and source apportionment needs from the health and exposure community
  - Atmospheric sciences assessment of the capabilities for meeting these needs
  - Identified course of action to fill the gaps

Task 2 **Identify Ecosystem Related Air Accountability Assessment Needs**

- Workshop(s) involving ecosystem scientists and NARSTO air quality scientists.
- What is needed to
  - Associate ecosystem changes with air quality, deposition, and emission changes
  - Investigate the effects/consequences of acid deposition, ozone exposure, and mercury deposition on ecosystems
    (also needed for evaluating standards)
- NARSTO AQ scientists assess the capabilities of monitoring and modeling to address these needs

Task 2 **Identify Ecosystem Related Air Accountability Assessment Needs**

- Products
  - Prioritized technical monitoring and source apportionment needs from the ecosystem science community
  - Atmospheric sciences assessment of the capabilities for meeting these needs
  - Identified course of action to fill the gaps

Task 3 **Identify Air Quality Accountability Assessment Data Requirements, Tools, and Procedures**

- Assess challenges of meeting Charge 2. Principally,
  - Quantify air quality changes of criteria, hazardous and precursor pollutants
    - Account for the effects of meteorology
    - Account for the potential effects of climate change (or consequences for climate policy)
  - Determine the contributing source emission changes
    - Relationship of emission changes to AQ management actions
    - Contribution of transported pollutants to local changes and the contribution of local emissions to long range transport

Task 3 **Identify Air Quality Accountability Assessment Data Requirements, Tools, and Procedures – Cont'd**

- Conduct an integrated assessment of the technical challenges in meeting all air quality management accountability needs.
- Products
  - Combined set of accountability needs
  - Assessment of the capabilities for meeting these needs
  - Recommendations for strengthening these capabilities
  - Description of the activities required to perform multi-pollutant assessments of progress in meeting air quality, public health, and environmental goals

Next Steps / Timetable

- Endorsement by Executive Assembly
  - May 9-10
- Mini-Scoping Workshop
  - September 25-26 in RTP, NC
- Selection of Assessment Team
  - June-Oct
- Assessment begins
  - Fall, 2006
- Assessment Complete
  - End of Year, 2008

Thoughts ?

Contribution to Client Activities: Findings from 2005 EPA Survey

- ORD (NARSTO?) contributes greatly to clients' ability to improve the scientific foundation of rules and regulations and to increase their knowledge of scientific principles
- The scientific tools and or information provided by ORD (NARSTO?) are very useful to clients in completing their work
- ORD's (NARSTO's?) contribution is less significant in clients' interactions with their own clients/stakeholders
- Analysts find ORD's (NARSTO's?) contribution to be more significant than managers, particularly in the application of scientific tools and information

Contribution to Client Actions/Decisions: Findings

- The majority of clients report that at least half of their office's major actions or decisions rely on ORD (NARSTO?) science, and nearly all clients indicated that the foundation of this science was excellent.
- The majority of clients reported that ORD (NARSTO?) made a "substantial" or "critical" contribution to the quality of the office's major actions or decisions.
- For important science-supported decisions or actions, ORD (NARSTO?) science was used over 90% of the time.
- Analysts rely more heavily than managers on ORD (NARSTO?) science for actions and decisions.

Conclusions

- Overall, clients are very satisfied with the scientific tools and information developed by ORD (NARSTO?) and with efforts to assist clients in applying ORD (NARSTO?) science.
- ORD's (NARSTO?) scientific tools and information provide important support for clients' activities, actions, and decisions.

NARSTO Contribution in the AQM Context

- **AQM T1- G1- R1: Improve accuracy, robustness, and availability of environmental and health data** to enable more complete characterization of air quality, emissions, and environmental and health outcomes and to facilitate the assessment and characterization of relative risks.
  - Improve **air quality data**
  - Fill gaps in **emission inventories** and **air quality modeling**
  - Improve information on health and ecosystem endpoints
  - Improve coordination/ communication between EPA and **external partners**
  - Improve the collection of control and cost data
- **AQM T1- G1- R2: Improve the priority setting process** by creating mechanisms to systematically realign resources and regulatory focus toward areas of greatest health and environmental risk. ***(a relative risk, Multi-pollutant approach)***
  - Develop a comprehensive, **multipollutant air quality plan** and review/update every 5 years
  - Use the updated information to in developing national regulatory priorities
  - EPA and CDC working with S/L/T should produce an **air quality health trends report** every 5 years
  - EPA, Federal Land Managers, others should produce a **report on links of air quality and ecosystem health** every 5 years
  - Improve the link from improved science to improved policy through a **new science to policy mechanism**
  - EPA and States should focus on multipollutant approaches

NARSTO Contribution in the AQM Context cont.

- **AQM T1- G1- R3: Improve accountability** by systematically monitoring progress and evaluating results, working to ensure that data collection is meaningful and that feedback loops exist to ensure that actual environmental results inform the future allocation of resources and the establishment of priorities.
  - Adjust the NAAQS review process to be more timely and efficient
  - EPA in close consultation with the States should develop an **air accountability framework** providing an overarching structure for priority setting
  - EPA should work with CDC and others to improve **indicators**
  - EPA and S/L/T should evaluate the **progress** being made under various programs
- **AQM T1- G2- R2:** EPA, States, local governments, and Tribes should **move from a single pollutant approach to an integrated, multiple pollutant approach** to managing air quality through the creation of an AQMP as a comprehensive air quality management plan updated every 5-10 years
  - Develop a **framework for an AQMP**, identifying legislative changes
  - Transition to an AQMP approach with **tools** and incentives
  - Assess period of NAAQS reviews correlating them with **new/ improved science**
  - Assess option of developing NAAQS in parallel
  - Continue support of multipollutant control strategies with **pilots, guidance, tools and data**
  - Use AQMP Phase I to target emissions reductions
  - Determine approaches for targeted, expeditious, greatest overall benefit emissions reductions
- **AQM T1- G3: Coordinate with other programs such as land use, energy, transportation and climate**.

June 27-28, 2006 AQM Subcommittee Meeting
Atlanta, GA

Team 1 Table of Contents

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- **RECOMMENDATION 3: AN INTER-AGENCY LIAISON GROUP SHOULD BE ESTABLISHED WITH EPA AND OTHER FEDERAL AGENCIES (e.g., FAA, HUD, DOE, NRC, FERC, USDA, CDC, DOI AND DOT) TO EXPLORE ISSUES AND OPPORTUNITIES FOR COORDINATING LAND USE, ENERGY, TRANSPORTATION, GREENHOUSE GAS AND AIR QUALITY GOALS.**
- **RECOMMENDATION 4: DEVELOP PROGRAMS THAT FOCUS ON REDUCING PUBLIC DEMAND FOR POLLUTING ACTIVITIES, ESPECIALLY NONESSENTIAL ACTIVITIES. SUCH PROGRAMS COULD INCLUDE INCENTIVE PROGRAMS FOR ENCOURAGING USE OF LOWER-POLLUTING ACTIVITIES, REDUCTION PROGRAMS, AND TAX AND USE RESTRICTIONS.**
- **RECOMMENDATION 5: ANALYZING EXISTING LAWS TO DETERMINE THE EXTENT TO WHICH THEY CAN BE USED TO ENCOURAGE POLLUTION PREVENTION, ENERGY EFFICIENCY AND RENEWABLE ENERGY AS THEY MAY BE EFFECTIVE IN REDUCING EMISSIONS.**
- **RECOMMENDATION 6: EPA SHOULD WORK WITH STATE AIR AND ENERGY ORGANIZATIONS, TRIBAL GOVERNMENTS AND REGIONAL AIR QUALITY PLANNING ORGANIZATIONS TO OVERCOME POTENTIAL BARRIERS TO CLEAN ENERGY/AIR QUALITY INTEGRATION.**
- **RECOMMENDATION 7: TAKING CLIMATE CHANGE INTO ACCOUNT IN AIR QUALITY MANAGEMENT STRATEGIES.**

Defining the Problem and Setting the Right Priorities
Team 1 Group 1
Recommendation #1
June 19, 2006

Recommendation: Improve accuracy, robustness, and availability of environmental and health data to enable more complete characterization of air quality, emissions, and environmental and health outcomes and to facilitate the assessment and characterization of relative risks.

Background/Explanation: In order to improve the air quality management system's ability to focus on the most important priorities, data needs to be continuously improved. Science is always improving our understanding of air pollution and its impacts on public health and the environment. Several of these recommendations are carried over or expansions of recommendation made in Phase 1 AQM report.

NAS Recommendation Addressed: Recommendation 1: Strengthen Scientific and Technical Capacity

Scenario: Mixed – Scenario 1 unless otherwise indicated.

Recommended Actions:

1. Improve air quality data – continually improve air quality monitoring network to collect data on pollutants of concern, in areas of concern:

- Action 1. EPA has already proposed to work with states, locals, tribes and other stakeholders to review the national monitoring system. EPA should revise monitoring requirements as appropriate and in as timely a manner as possible to allow states to shift resources in line with results of review.
- Action 2. EPA should provide better outreach and establish a category of monitoring devices (or practices) that can be used for research, informational, policy-setting, and public information purposes but will not be used to set nonattainment boundaries or bring other regulatory programs into play and work with states, locals, tribes and other stakeholders. (Scenario 2 and 3)
- Action 3. EPA, in partnership with other Federal agencies, should develop a more integrated observation strategy that addresses gaps in rural and elevated observations critical to supporting ecosystem, regional and intercontinental transport assessments. As part of this strategy, the incorporation of emerging environmental data sets from satellites, air quality forecasting and chemical data assimilation (i.e., integration of models and observations) should be tasked as a requisite for advancing air quality assessment capabilities over the next several decades.

2. Fill gaps in emissions inventories and air quality modeling:

- Action 4. Target resources towards the improvement, demonstration and development of CEMS technology to make it more cost-effective and more accurate, especially for appropriate emission sources for which CEMS technology is not currently available, accurate or within reasonable costs. EPA should

encourage CEMS or alternate emission estimations technology for the pollutant of interest (not a surrogate) as the default compliance monitoring technology using incentives for future rules. This may not be applicable or appropriate for smaller areas sources. (Scenario 2)

- Action 5. EPA should develop adequate emissions infrastructure so emissions estimates can be shared across stakeholders (S/L/T and industry). Focus should be on improving information and emission numbers in inventory.
- Action 6. States should be required to provide multipollutant (including HAPs) and speciated information as available to the National Emission Inventory. Some states already provide or collect this information, but not all.
- Action 7. Emphasize the use of air quality models to evaluate current conditions as well as project future scenarios, and then evaluate those results for corrections to models or approaches if projections not met. Models provide a needed complement to data in accountability assessments in which reconstructed modeling of past years allows for checking original assumptions and success of rule implementation. In addition, models should be used in combinations with observations to evaluate and improve emissions estimates through inverse modeling procedures.
- Action 8. Develop the needed interfaces between air quality and watershed and terrestrial models to better link air program rules with deposition related impacts on ecosystems.
- Action 9. Use current air quality models to quantify co-benefits across multiple pollutant categories, recognizing the limitations (due to scarcity) of ambient data to address interactions of HAPs with PM and ozone.
- Action 10. Integrate models and ambient data to provide more robust, spatially, temporally and compositionally enhanced air quality surfaces for accountability, regulatory, ecosystem and health assessments.

3. Improve information on health and ecosystem endpoints and relative risk of exposure to single and multiple pollutants, at the individual, population, and ecosystem levels.

- Action 11. EPA should focus on improving methodologies to address uncertainty (e.g., uncertainties in extrapolating high to low dose exposures, from animal studies to human impacts, or laboratory to field).
- Action 12. EPA and other Agencies should redesign research and grant programs to encourage the timely targeting of key issues and more flexibility to shift resources in the face of new problems or priorities.
- Action 13. EPA should work with CDC, S/L/Ts, other agencies and stakeholders to improve indicators that can be used to assess the impact of changes in air quality on public health and ecosystem health. These agencies should encourage research in areas that will help develop indicators to assess the success of various programs.

4. Improve coordination and communication between EPA and external partners, including health agencies, academic institutions, and the medical community.

- Action 14. States, Tribes, EPA and CDC should periodically hold national and/or regional joint environmental health summits on a regular schedule to evaluate current priorities and identify new issues.
- Action 15. States, Tribes, EPA, Federal Land Managers, and other agencies, should periodically hold national and/or regional joint ecosystem health summits on a regular schedule to evaluate current priorities and identify new issues.
- Action 16. S/L/T environmental agencies should work actively to increase coordination with appropriate health agencies.
- Action 17. State health agencies should be involved in developing State air quality management plans. (Scenario 2)
- Action 18. EPA should improve the availability of reports, studies and data in whatever format on the impacts of air pollution and air pollution control programs on health, agriculture and ecosystem quality to S/L/T agencies, other stakeholders and the public. This could include a library established on an EPA webpage, a regular listing of recent studies, links to other internet sources of information such as STAPPA/ALAPCO.

Implementation: Many of these actions are already in progress; however some will require additional effort. The primary constraint is resources both funding and FTE for actions such as inventories, modeling and monitoring.

Benefits: Improved air quality data and information on which to base decisions related to control strategies, evaluate the results of implemented strategies and make changes as needed to improve air quality resulting in improved public health and health of the environment. In addition, improved communication with multiple parties to ensure that information is shared and used to enhance program results.

Sectors/Categories Recommendation Applies to: all

Tools Needed: to be incorporated

Priority: High

Defining the Problem and Setting the Right Priorities
Team 1 Group 1
Recommendation #2
June 19, 2006

Recommendation: Improve the priority setting process by creating mechanisms to systematically realign resources and regulatory focus toward areas of greatest health and environmental risk.

Background/Explanation: The air quality management system has been operating in a "stovepipe" process for a while, and in order to address the air quality issues of the future needs to realign to an approach which more effectively addressed the interaction of multiple pollutants. While progress has been made in addressing some multistate transport of air pollution, transport issues still need to be identified and proactively addressed. Urban areas also have a mix of emissions which may be more appropriately addressed in a multipollutant fashion than individually.

Problem/Challenges Addressed:

- The need to be able to address new priorities promptly
- Identification and assessment of most significant exposures and problems
- Integration of a multipollutant approach

NAS Recommendation Addressed: Recommendation 1. Strengthen Scientific and Technical Capacity; Recommendation 2. Expand National and Multistate Control Strategies; Recommendation 3. Transform the SIP process; Recommendation 4. Develop Integrated Program for Hazardous Air Pollutants; and Recommendation 5. Enhance Protection of Ecosystems and Public Welfare

Scenario: Noted after each recommendation – primarily Scenario 1 with a few exceptions.

Recommended Actions:

- Action 1. EPA should use the updated information provided by the S/L/Ts in their air quality management planning process to develop national regulatory priorities. EPA should also, through modeling and monitoring, help define problems that occur on a national scale which can be used to support S/L/T plans. (Scenario 1)
- Action 2. EPA and the CDC working with S/L/T should produce an Air Quality Health Trends report that links changes in ambient air quality to health data on a 5-year cycle, using the best available information and recognizing the limitations of those data. (Scenario 1)
- Action 3. EPA, the Federal Land Managers, and other agencies, working with S/L/T should report on links between ambient air quality and the "health" quality of ecosystems on a 5-year cycle, using the best available information and recognizing the limitations of those data. (Scenario 1)

- Action 4. EPA and other stakeholders should improve the link from improved science to improved policy by developing new mechanisms to encourage more rapid adjustment of policy priorities in the face of new scientific information than has been done historically. EPA should seek new incentives and hammers to encourage the realignment of regulatory priorities and implementation efforts to deal with the highest priority problems, both within the agency and among States. What are the most effective approaches - command and control versus incentives or something else? (Scenario3)

Implementation: The primary obstacle to implementation will be resources for developing outputs either reports or model information. There will be difficulty for many states to develop overall air quality management plans without some federal regulatory requirement to do such.

Benefits:

- Will produce a more comprehensive approach to improving air quality than the stovepipe approach taken now, as pollutant interactions will be considered more
- Will allow S/L/T to more quickly shift resources to areas of higher priority
- Improved communication with the public on the status of health and the ecosystem as a result of air quality impacts

Sectors/Categories Recommendation Applies to: All

Tools Needed:

- Will require improved modeling and monitoring for integrated pollutant evaluations.
- Will require toolbox of incentives or approaches to encourage realignment of program priorities as needed

Priority: High

Defining the Problem and Setting the Right Priorities
Recommendation #3
Team 1 Group 3
June 19, 2006

Recommendation: ***Improve accountability by systematically monitoring progress and evaluating results, working to ensure that data collection is meaningful and that feedback loops exist to ensure that actual environmental results inform the future allocation of resources and the establishment of priorities.***

Background/Explanation: The air quality management system must include an ongoing process for of accountability, evaluating progress and developing ways to make adjustments in activities and resource allocation based on the success or failure of existing programs. Part of this process involves continuing investments in strong technical tools, such as modeling, monitoring, and emissions inventory capabilities, to ensure decisions are informed by the best possible new information. AQM Phase 1 focused on needs in this area. In addition, it is important to evaluate program performance relative to air quality and cost-benefit goals, and to adjust program efforts and priorities according to the results of that assessment if and as appropriate.

In the past, EPA has had difficulty shifting resources and programmatic momentum in the face of new problems. For example, EPA first promulgated a fine particle ambient air quality standard in 1997 (after a number of years of evaluating available health data that indicated fine particles posed a more significant health risk than many other air pollutants of concern). However, areas were not designated attainment or nonattainment until late 2004; SIPs aren't due until 2007; and the first attainment deadlines are in 2009. Although fine particles pose, in most people's view, a more serious and pervasive threat to public health than ozone, states continue to devote substantial resources to ozone—indeed ozone is "first in line" because of statutory deadlines. States are trying to employ sensible efforts to combine ozone and fine particle planning and reduction programs, but the rigid statutory structure and deadlines make it difficult.

Even when targeted programs are developed to tackle a specific problem, measuring progress accurately and assuring that we are actually reducing the targeted pollutants and improving public and ecosystem health can be difficult. Current ways of measuring progress are slow and, in some cases, not very accurate.[1]

In sum, the current system is extremely cumbersome when faced with new information about health and air pollution priorities, no matter how compelling the evidence is (unless an issue prompts congressional or state legislative action, in which case resources are diverted promptly, maybe even precipitously).

Problems/challenges Addressed:

[1] For example, compiling emissions inventory information to determine whether emission reduction programs have been effective can take several years and, unless continuous emissions monitoring systems are available, may be little more than estimates based on previously estimated emissions and updated economic activity predictions.

1. The need to be able to address new priorities promptly.
2. Lack of confidence in the effectiveness of pollution reduction programs because of weak accountability systems (and therefore potentially lack of support for continuing or future programs)

NAS Recommendation Addressed: This recommendation is consistent with the following recommendations of the NAS report:

1. Strengthen the scientific and technical capacity of the AQM system to assess risk and track progress;
3. Transform the SIP process into a more dynamic and collaborative performance-oriented, multipollutant air quality management plan (AQMP) process;
4. Develop an integrated program for criteria pollutants and hazardous air pollutants; and 5. Enhance protection of ecosystems and other aspects of public welfare.)

Scenario: Actions 1-2 listed below could be readily accomplished within the current structure of the Clean Air Act and therefore fall in Scenario 1. Several of these recommended actions are similar to, reinforce and continue some of the longer term recommendations made during Phase I of the AQM process.

Recommended Actions:

- Action 1: Make information available to CASAC, S/L/T and the public on an ongoing basis about significant new research and studies on the health, welfare and ecosystem impacts of air pollution. Provide a summary of significant new studies annually to the CASAC and to the CAAAC. Publish a summary in the Federal Register and prominently on the EPA website. (Scenario 1)
- Action 2: EPA and S/L/T should work to "design for accountability" (Scenario 1):
    - EPA and other stakeholders should embed metrics and schedules for tracking progress within programs and rules at the time they are initiated. Using these metrics, EPA and S/L/T should evaluate the progress that is being made under various regulatory control programs, by assessing compliance rates, actual reductions achieved, and in practice cost-benefit analysis.
    - EPA and other stakeholders should improve the collection of control and cost data to facilitate analysis of both projected and actual implementation costs for major regulations, as follows:
        - EPA should develop an improved means of assessing actual compliance technologies chosen and actual costs associated with implementation of air pollution control efforts. Prospective modeling to estimate costs in advance of new rules should be matched with retrospective analysis of actual implementation costs, so that results and impacts can be assessed more accurately.

        - EPA and S/L/T should invest jointly in a complete, up-to-date system to catalog pollution control technologies available and the associated costs.
    - EPA and other stakeholders should improve the assessment of the benefits—both prospective and retrospective—associated with avoiding air pollution-related health impacts and premature mortality, ecosystem damage, agricultural impacts and other public welfare impacts.
    - Pollution control information and cost-benefit calculations should be combined with the information in EPA's Trends Reports to produce a more comprehensive "accountability" assessment that tracks program progress in a transparent and publicly accessible way.
    - Initial accountability efforts should focus on major rules such as CAIR, CAMR and mobile source rules, but accountability metrics should ultimately be incorporated into all types of programs.

Implementation: The actions recommended here are resource-intensive and technically challenging (or we would probably have done them by now), and could be seen as shifting resources to accounting for progress instead of working on programs that will actually improve air quality.

Benefits: The public will benefit if regulators are focusing on the more important public health issues and have more flexibility to respond to newly developed information. Publicizing significant new health and ecosystem studies on a regular basis will increase focus on public health and environmental goals and should help streamline the review/revision of primary standards and enable the development of meaningful secondary standards that will protect ecosystems. Furthermore, ongoing efforts to track effectiveness and cost/benefit results of programs should enhance program design and effectiveness in the future. Accountability is always necessary to ensure public resources are being used to the greatest purpose, to assure confidence in the need for current and future programs.

Sectors/Categories Recommendation Applies to: These recommendations do not apply to specific sectors or categories.

Tools Needed: Tools include emissions inventory tools, tools to link health effects and air pollution exposure, risk assessment tools, tools to collect real cost and benefit data from implemented programs.

Priority: [ ]

Comprehensive Air Quality Management Planning
Recommendation #1

Team 1, Group 2
June 19, 2006

Recommendation:

To improve the AQM process, EPA, States, local governments, and Tribes should move from a single pollutant approach to an integrated, multiple pollutant approach to managing air quality through creation of a comprehensive air quality management plan (comprehensive AQMP). The AQMP would be a statewide plan to address air pollutants in an integrated manner, including attainment and maintenance of the NAAQS, sector-based reductions of HAPs and criteria pollutants, visibility and ecosystem protection, and local environmental issues within a State. For a true multi-pollutant approach, all issues that relate to air quality (e.g., energy policy, climate change, transportation, and land use) would need to be addressed in the AQMP. The goal would be to create a comprehensive plan that is multi-pollutant-based and which addresses all of the critical air pollution issues within a State, sets priorities, and provides an overall plan.

This recommendation would be implemented in two phases, to evolve the SIP to a Comprehensive AQMP that would still meet all of the SIP requirements. In Phase 1 (Scenario 1/2), the AQMP would act as an umbrella document, with no CAA amendments needed; in Phase 2 (Scenario 3), the AQMP would be a comprehensive, integrated plan for addressing all critical air pollution issues within a State, with CAA amendments needed. The AQMP would be updated on a fixed schedule (e.g., 7 years).[1] Provisions would be established for updating the AQMP to address NAAQS revisions. The AQMP would then form the basis for creating multi-state/regional AQMPs in the future.

Background/Explanation:

The CAA currently takes a single pollutant approach for criteria pollutants (through the NAAQS) and a source sector-based approach to HAPs (through the NESHAPs). This approach can result in the selection of control strategies/technologies that cause disbenefits (i.e., increases in emissions of other pollutants). Though the current CAA has requirements that make a multi-pollutant planning approach difficult (e.g., varying attainment dates), a multi-pollutant approach to air quality management could offer many advantages. These may include: 1) reaching attainment in a more cost-effective, efficient way, while getting greater overall reductions of pollutants; 2) optimizing the mix of control measures for multiple pollutants, thus avoiding control measures that, while beneficial in reducing one pollutant, may result in increases in others; 3) making better use of limited Federal, State, local, and Tribal resources, and those of the regulated community, for improving air quality; 4) providing a more predictable and manageable air quality planning process than the current SIP process; and, 5) making it easier and less expensive for potentially affected sources to plan installation of controls and/or process changes, rather than having to install controls in a piece-meal fashion.

Problems/Challenges Addressed:

[1] The process for implementing the 1997 PM2.5 NAAQS will take approximately 11 years (from NAAQS promulgation in 1997 to SIP submission in 2008). Table 1 provides a comparison of the timing for the SIP approach versus example Phase 1 & Phase 2 approaches.

There are two fundamental problems with the existing system. First, the process of multiple SIPs being developed on different schedules but in the same general timeframe creates very difficult management and resource problems for States and Tribes. With a consolidated and comprehensive AQMP for all air quality related issues developed for the whole state on one fixed schedule, there would be significant economies of scale for resources and result in a more through plan. Secondly, State, local, and Tribal agencies continue to struggle to meet national ambient air quality standards, and standards continue to be tightened. National, regional, and local emission controls have been required on many sources of pollution but local impacts still occur from nearby sources, and regional impacts are also felt as pollutants are transported long distances.

This recommendation suggests ways to accomplish the goal of reducing emissions of air pollutants more effectively and efficiently, in order to protect human health and ecosystems.

NAS Recommendations Addressed:

This recommendation addresses NAS recommendations 3, 4, and 5, and is more specific than NAS recommendations 3 and 4.

> Recommendation 3: Transform the SIP process into a more dynamic and collaborative performance-oriented, multi-pollutant air quality management plan (AQMP) process.
>
> Recommendation 4: Develop an integrated program for criteria pollutants and hazardous air pollutants.
>
> Recommendation 5: Enhance protection of ecosystems and other aspects of public welfare.

Scenario(s):

This recommendation provides a more integrated approach to managing air quality than the current SIP-based system. Recommended actions, in many cases, could fall into more than one of the three scenarios.

Recommended Actions :

- Develop a framework for an AQMP [Scenario 3]
- Transition to a comprehensive multi-pollutant air quality management planning (AQMP) approach. [Scenarios 2 & 3]
- Continue current efforts to support multi-pollutant control strategy development (e.g., Detroit Pilot Project, development of guidance, development of tools and data (per Team 1, Group 1 recommendations)) [Scenarios 1, 2, 3]
- Use findings of AQM Phase I assessments (e.g., assessments of identified sectors) to help target emission reduction efforts [Scenarios 1, 2, 3]
- Determine approaches for attaining targeted emission reductions expeditiously and with greatest overall benefits [Scenarios 1, 2, 3]

Implementation:

Some of the recommended actions, particularly those associated with Scenario 1, could be implemented readily. Many of those associated with Scenarios 2 and 3 would require additional resources, and, in some cases, either legal risks or legislative changes to the
CAA.

This recommendation provides a framework for the integration of many other recommendations.

Benefits:

This recommendation for a periodic AQMP will improve air quality management by creating an approach for addressing air pollutants in an integrated manner, including attainment of the NAAQS, sector-based reductions of HAPs and criteria pollutants, visibility protection, ecosystem protection, and local environmental issues within a State. Issues that relate to air quality, including energy, climate change, transportation and land use could also be included in the AQMP. There would be a significant improvement in the effectiveness of a State or Tribal air quality program. Additionally, the current resource and management issues related to plan development and implementation would be significantly improved under the periodic AQMP concept.

Sectors/Categories Recommendation Applies to:

This recommendation could apply to all mobile, stationary, and area sources and all sectors/categories.

Tools Needed:

Improved monitoring and modeling data and tools would assist the implementation of this recommendation (per Team 1, Group 2 recommendations).

Priority: High

Technical Supplement to Recommendation #2
Comprehensive Air Quality Management Planning

Background

This recommendation would be implemented in two phases, to evolve the SIP to a Comprehensive AQMP that would still meet all of the SIP requirements.

Phase 1: AQMP as umbrella document that is multi-pollutant based and which addresses all critical air pollution issues within a State. It would include:

- individual/integrated SIPs (that considers HAP), as required by the CAA
- sector-based reductions of HAP and criteria pollutants
- plans for visibility protection (e.g., regional haze SIPs) and ecosystem protection
- plans for addressing local environmental issues
- plans to address issues that relate to air quality (e.g., energy policy, climate change, transportation, and land use)

Phase 2: AQMP as a comprehensive plan that is multi-pollutant-based and which addresses all critical air pollution issues within a State. It would include:

- plans for attaining NAAQS, for obtaining sector-based reductions of HAP and criteria pollutants, for addressing visibility (e.g., regional haze), and for protecting ecosystems
- plans for addressing local environmental issues
- plans to address issues that relate to air quality (e.g., energy policy, climate change, transportation, and land use)

Issues that Need to be Addressed

General:

- Discuss how to move toward State development of AQMPs though not a CAA requirement (e.g., by providing economic incentives, other incentives, …)

Regulatory coverage:

- What federal requirements besides NAAQS and regional haze will be addressed in the AQMP (e.g., toxics, ecosystems)?
- Need to address federal enforceability of AQMP (i.e., which parts are federally enforceable)
- Need to encourage inclusion of programs to address regional, state, and local air quality issues even if not required to meet federal mandates
- How would the AQMP be best developed to be useful for multi-state planning?

Planning cycle:

- When would the first AQMP be submitted? (examine opportunities under current CAA; see Table 1 for example timeline)
- How often would AQMPs be updated (timing for major revisions and mid-period corrections/reviews)?
- Discuss how to align SIP submittal dates, to be compatible with each other and with an AQMP
- Discuss how the timing of SIP submittals might be changed to encourage an AQMP without weakening requirements for attaining standards
- Discuss need for changes, if any, to timing of NAAQS review process to facilitate AQMP.
- How would NAAQS revisions and new information on health and other effects be adopted into AQMP, with regard to AQMP planning schedule?
- How would EPA SIP approval affect planning cycle?

Table 1. Comparison of Timing for SIP Approach versus Example Phase 1 & 2 AQMP Approaches

Milestone	**1997 $PM_{2.5}$ NAAQS**	**1997 8-Hr O3 NAAQS**	**Comprehensive AQMP, Phase 1 (Scenario 1/2) PM/Ozone SIPs[2]**	**Comprehensive AQMP, Phase 2 (Scenario 3)[3]**
Effective date of Standard	Sept. 1997[4]	Sept. 1997		
Monitoring Data Used for State Recommendations	2001-2003	2001-2003	2001-2003 $PM_{2.5}$ 2001-2003 Ozone	2001-2003 $PM_{2.5}$ 2001-2003 Ozone
State recommendations to EPA	Feb. 2004	July 2003	July 2003 Ozone Feb. 2004 $PM_{2.5}$	July 2003 Ozone Feb. 2004 $PM_{2.5}$
Effective Date of Designations	April 2005[5]	June 2004	April 2005 $PM_{2.5}$ June 2004 Ozone	April 2005 $PM_{2.5}$ June 2004 Ozone
SIPs due	Sept. 2006 CAIR Dec. 2007 Reg. Haze April 2008 PM2.5[6]	Sept. 2006 CAIR July 2007 Ozone	Sept. 2006 CAIR Dec. 2007 Reg. Haze July 2007 Ozone April 2008 $PM_{2.5}$	Not applicable in this scenario
1st AQMP due			Dec. 2007[7]	Dec. 2007[8]

[2] Phase 1 (Scenario 1/2): Assumes a 7-yr fixed schedule, as an example. For this approach to be adopted, extensions on $PM_{2.5}$ SIP submittal dates and/or incentives for meeting the earlier $PM_{2.5}$ SIP submittal dates for both PM2.5 and ozone SIPs would need to be given.

[3] Phase 2 (Scenario 3): Issues need to resolved; this approach requires CAA amendments. See "Issues that Need to be Addressed for Implementation of Recommendation" section (above).

[4] For the current $PM_{2.5}$ NAAQS, there will be an approximately 9-year interval (1997-2006) for the NAAQS review process rather than the 5-year interval mandated by the CAA. The 2006 PM NAAQS promulgation date (Sept. 27, 2006) was set by consent decree.

[5] EPA has up to 3 years to promulgate designations (State has up to 1 year of those 3 to submit list of areas to EPA). For $PM_{2.5}$ designations, this took 8 years from promulgation.

[6] From $PM_{2.5}$ NAAQS promulgation to SIP submission will be 11 years (1997-2008).

[7] This date is based on a 7-yr interval that begins December 2007. This AQMP would incorporate joint/integrated SIPs for the $PM_{2.5}$ NAAQS, 8-Hr O2 NAAQS, CAIR, and regional haze, and also recognize potential NAAQS revisions.

[8] This AQMP would include integrated implementation plans for the $PM_{2.5}$ NAAQS, 8-Hr O2 NAAQS, CAIR, and regional haze, and also recognize potential NAAQS revisions.

Milestone	**1997 $PM_{2.5}$ NAAQS**	**1997 8-Hr O3 NAAQS**	**Comprehensive AQMP, Phase 1 (Scenario 1/2) PM/Ozone SIPs[2]**	**Comprehensive AQMP, Phase 2 (Scenario 3)[3]**
Attainment Date	April 2010	June 2007 up to June 2024	April 2010 $PM_{2.5}$ June 2007 up to June 2024 Ozone	April 2010 $PM_{2.5}$ June 2007 up to June 2024 Ozone
Attainment Date with extension	Up to April 2015		Up to April 2015 $PM_{2.5}$	Up to April 2015 $PM_{2.5}$
2nd AQMP due			Dec. 2014	Dec. 2014

Reasonable Performance Levels
A Recommendation to the Air Quality Management Subcommittee
Recommendation #2
Team 1, Group 2
June 12, 2006

I. What is the Reasonable Performance Level concept?

Over a period of time, all sources of air pollution will demonstrate that they are achieving reasonable performance levels (RPLs) to control their emissions. The form and substance of this concept will be developed with consideration of applicable emission control regulations, technical feasibility, and costs as well as all fuel, operational, and emission control options.

II. How will the RPL approach address issues raised in the National Research Council of the National Academies report, *Air Quality Management in the United States, 2004*?

Implementation of this concept will contribute towards addressing many challenges and recommendations identified in the NRC report. These include:

A. Challenges. The RPL concept addresses six of the seven challenges noted in the NRC report and summarized below:

1. Meeting new standards for fine particles, ozone, and regional haze.

2. Understanding and addressing risks from air toxics.

3. Addressing exposure to pollutants with no threshold exposure level below which there are no adverse effects.

4. Mitigating pollution effects on minority and low income populations.

5. Enhancing understanding and protection of ecosystems.

6. Understanding and addressing multi-state and interstate transport of pollutants.

B. Recommendations. The RPL concept addresses three of the four primary committee recommendations and four of the five inter-related recommendations noted in the NRC report and summarized below:

1. Integrate a multi-pollutant approach for controlling emissions with most significant risks, develop an integrated program for criteria and hazardous air

pollutants, and transform the SIP process into a more dynamic and collaborative performance-oriented multi-pollutant air quality management plan.

2. Take an air-shed approach to controlling emissions at the local, multi-state, national, and international level.

3. Emphasize results over process, create accountability, and dynamically adjust and correct the system as data on progress are assessed.

4. Expand national and multi-state performance-oriented control strategies including controlling unregulated and under-regulated sources, expanding use of performance-oriented market-based multi-pollutant control strategies, and enhance authority to identify and address multi-state and international transport.

5. Enhance protection of ecosystems and other aspects of public welfare.

III. How will the RPL concept meet other goals?

A. Sustainability. Minimizing emissions is important to the current environmental and economic health of every region of the country. Emissions should be reduced to the extent practical so that human and ecosystem health is protected, both for current and future generations. Achieving reasonable performance levels will reduce exposure to harmful pollutants in the immediate areas of emission sources as well as contribute to reductions of transported pollutants into other areas.

B. Economic Vitality. Reductions in existing emissions and control of new emissions will allow maximum flexibility to communities that are seeking to add to their local economies through business recruitment and growth.

C. Achieving Basic Environmental Standards. Hazardous waste, solid waste, and water programs have enforced minimum treatment and disposal requirements for decades. Air pollution sources have been allowed to emit pollutants in an uncontrolled or minimally controlled fashion in many areas if more stringent regulations do not exist. This has resulted in large amounts of harmful pollution being emitted, some of which impacts local areas and some of which impacts regionally and nationally. There should be reasonable performance expectations for all current and new emission sources.

IV. How would implementing the RPL concept impact sources?

New and expanding sources not otherwise subject to reasonable emission control mandates would be required to demonstrate that reasonable performance levels have been achieved at start-up. Existing sources would be required to demonstrate that reasonable performance levels have been achieved within a to-be-determined timeframe after finalization of the RPL concept. Details of the implementation of the RPL concept would be developed after careful consideration of options and consultation with a wide range of stakeholders.

It is likely that a major portion of new and existing sources will already be subject to emission control requirements that are equally or more stringent than the likely levels of controls that would be required under the RPL concept.

V. What actions are needed to implement the RPL concept?

The Environmental Protection Agency will be responsible for reviewing existing authorities to implement the RPL concept, if any exist. The presumption at this point is that an amendment to the Clean Air Act would be required. If the presumption is correct, EPA would then be required to promulgate rules to implement the RPL concept. Over a specified timeframe, states would be required to adopt the RPL concept into its SIP or AQMP system.

VI. What are the expected outcomes for the RPL concept?

Among the many benefits of successful implementation of the RPL concept will be the following:

A. Reduced exposure to hazardous air pollutants.

B. Reduced exposure to criteria pollutants.

C. Improved local air quality as evidenced by reductions in the number and size of nonattainment impacts.

D. Improved urban and rural visibility.

E. Reduced transport of pollutants and fewer challenges by downwind states of upwind SIPs.

F. Enhancement of economic development possibilities through reductions in existing and future pollutant levels.

G. Standardized expectations for all pollutant sources nation-wide.

H. Multi-pollutant control opportunities for uncontrolled and under-controlled sources in a single project.

VII. Conclusions.

The details of the reasonable performance level concept have not been developed. A large number of options will need to be examined in the development of concept. What is proposed here is believed to represent a sound concept. Readers are encouraged to consider the validity of the proposal first, casting aside for a moment advocacy positions. The challenge for the Air Quality Management Subcommittee is to recognize the legitimacy of the proposal, if it can be determined to exist, and to recommend a process and approach that is rational and reasonable for implementing it.

Revised and presented for consideration to the Air Quality Management Subcommittee, Team 1, Group 2. June 12, 2006.

CONTINUOUS IMPROVEMENT
Recommendation #3
AQM Subcommittee Team 1, Group 2
June 20, 2006

Recommendation

The AQM subcommittee recommends that a combination of options be considered and implemented to achieve continuous emission improvements. Recommendations range from voluntary programs at the local level to continuing a national program of command and control emission standards. Recommendations include several options for strengthening and enhancing various market-based programs to encourage continuous improvements. The subgroup feels that a one-size-fits-all recommendation cannot be made and that multiple programs should be pursued simultaneously.

Based on historical successes with market-based systems and the general preference of businesses and individuals to control their own decisions, the subgroup feels it's important to include where appropriate *market-based incentive programs* based on potential for continuous improvement. Such programs include:

1. Public emissions reporting – similar to the Toxic Release Inventory (TRI) program to apply public pressure for "cleaner" products,
2. traditional emissions cap and trade – especially for high growth industries,
3. emissions cap and trade with a continuously declining cap or allowance retirement,
4. emission fees (with revenues used to pay for other environmental initiatives),
5. emission fee system based on an industry average performance.

Additionally, the concept of Reasonable Performance Levels (RPL) (see related AQM recommendation) could be applied in a way to achieve continuous improvement.

Background/Explanation

Current epidemiological studies are finding that health benefits for certain pollutants, including ozone and PM2.5, continue to accumulate at a steady rate right down to ambient concentrations of near zero. Therefore, there is a benefit to establishing a program that encourages continuous improvement with respect to emission rates and ambient air pollution concentrations. Benefits include improved public health, lower associated health care costs, and an improved environment.

This form of continuous improvement (Type 1) is not a new concept. It exists as a component of many state/tribal implementation plans (SIPs/TIPs) (e.g., reasonable further progress requirements), cap-and-trade programs (e.g., where industries need to accommodate increased production under a fixed cap), and in offset ratios set for certain nonattainment areas. The concept of continuous improvement is also reflected in the regional haze program, which seeks to reach natural visibility conditions by 2065, a goal that heavily relies

on continuous emissions improvement. Technology development must be encouraged to push towards continually lower emissions and more efficient operations as time progresses.

A second form of continuous improvement (Type 2) focuses on improving operational efficiencies to be able to generate more electricity, produce more products, provide more services, and accommodate more vehicles on the road without increasing air pollution emissions. Systematic continuous improvements are needed to prevent economic and business growth from being stymied. This type of focus on continuous improvement focuses on maintaining current air quality levels while making room for additional economic growth.

The Clean Air Act (CAA), as it is currently written and implemented, relies heavily on technology-based emission standards for reducing air pollutants to meet air quality goals. Technology based emission standards have many positive attributes and can be credited with most of the air quality achievements under the CAA to date. While some emissions sectors would benefit from continued command and control, other sectors may benefit from more progressive programs that create a self-driving market-based incentive toward continuous improvements.

It should be noted that many of the options identified for continuous improvement require some type of emissions measurements/estimations in order to gauge progress. In some cases continuous emissions monitors (CEMS) have been developed, standardized, and are in-use. However, other source types rely on emission factors that may or may not be suitable for certain continuous improvement programs without further development.

Challenges Addressed

- Provide mechanism(s) for achieving continuous emission reductions from all stationary, mobile and area sources
- Ensure continuous air quality improvement in all geographic regions
- Provide incentives for on-going development and diffusion of new control technologies and pollution prevention techniques
- Create a flexible system that can accommodate changes in science and air quality planning needs

NAS Recommendations Addressed

- Controlling currently unregulated and under-regulated sources; expanding use of performance-oriented, market-based (where appropriate) multi-pollutant control strategies.
- Transform the SIP process into a more dynamic and collaborative performance-oriented, multi-pollutant air quality management plan (AQMP).
- Enhance protection of ecosystems and other aspects of public welfare.

Scenario

1-3 depending on option

Recommendation Actions

Options Reviewed:

A. Technology-based emissions standards (Type 2 of continuous improvement),
B. Emission standard glide-slopes(Types 1 and 2),
C. Cap and trade programs(Type 2),
D. Cap and trade programs with continuously declining caps (Types 1 and 2),
E. Ambient air quality standard glide-slopes (Types 1 and 2),
F. Voluntary improvement programs (type unknown),
G. Emission fee systems (Types 1 and 2),
H. Emission fee system based on industry average performance (Types 1 and 2),
I. State/tribe regulatory improvement systems (Types 1 and 2),
J. Emissions reporting – Similar to TRI (type unknown),
K. Reasonable Performance Levels (RPL) (Types 1 and 2).

Each of these options could be fine-tuned and applied to a wide variety of source categories, although each application may present its own unique issues and implementation challenges. ***There may be a number of additional viable options for promoting continuous improvement with respect to air pollution emissions and ambient concentrations.***

It is likely that a combination of options will ultimately provide the best approach. For example, state/tribal improvement systems could be combined effectively with most of the other options listed in this paper. Some approaches may work well for certain source categories and not for others. In any event, it is the opinion of this subgroup that federal guidance and/or technical support (with substantial state/tribe and stakeholder input) would be needed to further develop and successfully employ those options which have not been previously implemented on a significant scale.

Based on prior experience, the market-based options are particularly attractive because they provide a *continuous market-based incentive* to reduce emissions. Moreover, rather than relying on regulators to determine the best targets for further reductions, these options would harness the ingenuity of thousands of industry scientists, process engineers, marketing experts, environmental specialists, and others with intimate knowledge of each and every facility, operation and product.

Implementation

Option C: Under **emissions cap-and-allocation trading systems**, regulators establish an emissions target (a "cap") for a group of sources and a schedule for achieving that target for a specific area and control period based on modeling and air quality goals. Tons of emissions representing individual "shares" of the cap are then allowed or "allocated" to each source. The source documents its actual emissions over the control period and compares this to its "balance" of available allocations. Compliance is demonstrated by showing actual emissions less than or equal to allocations.

Emission cap and trading programs can create a continuous incentive to reduce emissions. The ability to sell unused allowances, or save them for later use, gives

all participating companies a powerful ongoing financial incentive to pursue cost-effective emission reduction opportunities. In addition, companies in growing industries have to continuously reduce their emissions (per unit of production) in order to meet increased demand for their goods and services without exceeding the cap.

A constant emissions cap provides for continuous improvement within the capped sector whereby increasing product growth must be accommodated (Type 2). Under some cap and trade programs, allowances can be retired at a certain rate in order to also provide for continuous environmental improvement (Type 1).

Option D: **Emission cap and trading programs with a declining cap** create a continuous incentive to reduce emissions. Sources subject to these programs must demonstrate at the end of each reporting period that they hold a sufficient number of emission allowances to cover their actual emissions. The ability to sell unused allowances, or save them for later use, gives all participating companies a powerful ongoing financial incentive to pursue cost-effective opportunities for lowering their emissions. Beyond this, affected sources, collectively, must anticipate and implement the measures needed to remain in compliance after each incremental reduction in the cap.

A program for establishing a steady rate of declining caps could be established through the retirement of trading allowances at a certain rate per year. The rate of retirement, thus the rate of the declining cap, could be adjusted to capitalize on major technological breakthroughs.

Option G: **Emission fees** create a continuous incentive to reduce emissions in order to lower total fee payments over time. They spur emission reductions from all sources and/or activities covered by the fee and encourage continuous improvement. Even where the fee charged per unit of pollution is relatively modest, fee programs can result in the collection of large sums of money. These funds can be (a) turned over to the federal or state Treasury, (b) used to finance other initiatives designed to improve air quality, such as diesel retrofit programs, or (c) returned in some manner to manufacturers or consumers.

Option H: **Emission fees based on industry average performance or Industry Average Emission Fees (IAEF)** (such as Industry Average Performance System -IAPS) is a competitive, market-based system that is self-governing for air pollution control. Sources in a given industry are charged a fee each based on the degree that their emissions exceed their industry average. The fees can then be applied in a variety of ways, including being applied to fund other air pollution control initiatives. Dirtier than average sources have the incentive to reduce payments by updating pollution controls or operational efficiencies based on economic factors pertinent to them. This creates a continuous incentive for sources to reduce emissions. The fee may be automatically increased if the targeted level is not achieved.

Sources choose where, when, how much and through what means to reduce emissions. Regulatory agencies focus on reviewing emission reports and receiving and disbursing funds. In the absence of traditional "boom or bust" regulatory cycles, capital for control technology innovation is less risky, development is enhanced, and more new controls become cost-effective sooner. Over time, each source that reduces emissions causes the overall average to drop, creating a self-perpetuating continuous improvement dynamic.

IAPS is a hybrid approach where sources in a given industry are charged a fee each year based on their emissions. The "pot" is refunded to the same sources, but based on output. As a result, cleaner-than-average sources become net payees and dirtier-than-average sources become net payers. This creates a continuous incentive for sources to reduce emissions. Each year sources choose the cheaper option: further reducing their emissions (and paying less into the "pot"), or paying the per-ton fee for each ton they are currently emitting. A variation of this program could involve applying some percentage of the collective "pot" into funding other continuous improvement programs.

Option I: **State and Tribal Programs** could be developed to meet their own continuous improvement needs based on their own interests and priorities. This could be done on a completely voluntary basis (i.e., not much different from what exists today), or under basic parameters set by federal regulations. Many of the other options discussed in this paper could also be considered as state/tribe programs. States and tribes may be in the best position to develop targeted programs for continuous improvement.

Option J: **Emissions Reporting** systems could be developed similar to the Toxic Reporting Inventory system where the public has access to the emission information related to marketed products. Provided the results of the emissions reporting are easily assessable, the public would be empowered to support or not support certain products. It is envisioned that reporting could be provided on product labels and on an accessible Internet site.

Benefits

Over time, manufacturing, energy generation, and the emissions of public commerce would become more efficient and cost effective on a per unit basis while maintaining or improving environmental and/or human health implications. Ideally, a combination of continuous improvement approaches will reach each source sector and provide options to improve operations at a reasonable cost. Certain market-based programs can provide enough pressure for continuous improvement, but not so much as to exceed the existing state of technology.

Sectors/Categories Recommendation Applies to:

While some categories can be easily singled-out for initial implementation, all categories should ultimately be included under at least one form of continuous improvement program.

Some emission source types may lack enough of a clear-cut industry to reasonably apply a market-based program. Such emission source-types may still require traditional command and control programs in order to achieve continuous improvement.

Tools Needed

[Place holder for Team 2 insert]

Many of the options identified for continuous improvement require some type of emissions measurements/estimations in order to gauge progress. The methodology for performing this task should be reviewed and improved in areas where acceptable techniques have not yet been established. Automation of emissions estimates derived from emission factors could be considered provided there is a reasonable level of confidence in the factors and usage data involved.

Priority

Medium to High – Largely driven by need to establish long-term planning and set regulatory certainty.

June 19, 2006

LOCAL AIR QUALITY PLANNING
Recommendation #4
AQM Subcommittee Team 1, Group 2

Recommendation:

- Local / Tribal governments should integrate air quality planning into their land use, transportation and community development plans when high population growth is occurring in order to prevent significant deterioration of air quality.

- As America grows, it is particularly important that land use/transportation/air quality linkages be established in a manner that educates, provides incentives and flexibility for local/tribal officials and governing boards or commissions because local forums have great power to design and manage growth in ways to stimulate creative cost effective solutions for preserving clean air.

Background/Explanation: If we as a nation are to preserve the clean air still enjoyed in much of the country, we must begin to manage the chronic air pollution growth from minor and mobile sources that is occurring in high population growth areas where green fields are rapidly giving way to new residential, commercial and transportation developments.

A largely missing element of the clean air framework is the tools to achieve the policy goal of Section 160(3) of the Act "to insure that economic growth will occur in a manner consistent with the preservation of existing clean air resources" when minor and area source growth emissions are a threat to retaining clean air.

During the long history of the Clean Air Act, local government planning generally has only occurred when a non-attainment problem must be solved. Local governments, elected officials, and the business community, however, can react quickly to bring about cost-effective solutions to air quality problems when they understand the possible adverse economic impacts as a result of inaction. Opportunities for flexibility and inventiveness should be encouraged to engage local leaders early in the air quality management process in order to avoid prescriptive programs that would accompany non-attainment. Recently in North Carolina for example, local officials and the business community began to take significant ownership of the air quality issue and worked closely with EPA and the state to develop a suite of control measures with the specific goal of solving their air quality problem and hopefully deferring a nonattainment designation for their area.

Preserving clean air is no longer just a big industry and auto tailpipe challenge. Local governments and local leaders have a growing appreciation of the value of clean air as a health, quality of life and economic resource. Chronic erosion of air quality which gradually builds to violations of the health standards is an outcome Congress foresaw in 1977. While PSD increment standards and baseline dates set the foundation, neither the Act nor its rules were designed to tackle the challenge of massive urban expansion on green fields where today's clean

rural air quality is chronically eroded by small point sources, area and mobile air pollution sources in a relatively ungoverned manner.

The Issue Paper on Local Planning discusses other options including comprehensive state-wide or region-wide airshed planning that could tier-up from a mosaic of local plans. However, if all areas are required to undertake local planning, it could become a significant and unnecessary burden for local and tribal governments. Consequently, a more surgical approach is recommended to be applied in high population growth areas. This planning requirement would need to be accompanied by new planning tools to aid local and tribal governments.

Problems/Challenges Addressed: A new local planning paradigm is needed if states, local governments and reservations are going to preserve clean air below the NAAQS level while also promoting population growth and the vitality of their economies.

The PSD goals of Congress envisioned managing chronic pollution growth in clean air areas (CAA Section 160). However, the PSD rules are not designed to meet the challenge of chronic pollution growth from numerous minor and mobile sources when large green field areas are urbanized rapidly. Left unfettered, chronic pollution growth can consume the PSD increment and then become an impediment to new economic opportunities.

NAS Recommendation Addressed: This proposal addresses Recommendation # 2 by expanding the national AQM system to integrate and require local / tribal planning in some situations where pollution growth is occurring but not violating NAAQS.

In so far as ecosystem protection (Recommendation #5) is enhanced when air quality conditions are controlled to less than NAAQS levels, this proposal advances the AQM system for ecosystem protection and public welfare.

Scenario: #2 – Clean Air Act Sections 160 and 161 can serve as the basis to support new regulations that would achieve the concepts presented here for local planning.

Recommended Actions: Other than as mentioned in the following section, recommended actions have not yet been developed.

Implementation: Implementing this proposal will require considerable work especially with the local governments that are most likely to be affected. Regulations will be necessary and tools and guidelines for local government are essential. States will likely have a role in assisting locals or deciding when high growth areas will become subject to the local planning requirement. Because rapidly growing areas are often broader than one city or one local government, states will likely have an essential role in deciding when aggregate communities need to develop a multi-jurisdictional forum to accomplish the planning function.

Local AQM planning could integrate well with other recommendations of the Subcommittee notably: *Overcoming Barriers to Clean Energy / Air Quality Integration*; *Reasonable Performance Levels;* and possibly *Boundaries*

Success in implementing this concept for a new AQM planning paradigm is believed to rely on incorporating some key attributes while specifically avoiding others.

Attributes to Embrace:

- Leverage off of existing local or tribal government functions;
- Promote and create incentives for embracing clean air as a community economic, health and quality of life resource that is conserved and managed locally;
- Promote creative incentives shown to build local stakeholder buy-in;
- Recognize that a new "drivers" are necessary to force the AQ goals, yet drivers could be crafted as backstop provisions leaving room for results based innovations and stakeholder buy-in;
- Rely more on accountable changes via emission inventories, less on ambient monitoring, and less on modeling projections. For example, perhaps use the rate of change in emissions per 10 square miles or other emissions density changes as a surrogate for ambient AQ degradation and the trigger for local planning.

Attributes to Avoid:

- Avoid the current bureaucracy burden of non-attainment area SIPS.
- If the rules use the concept of SIP credits as a necessary measure of emission reductions, then create easier paths for credits when using innovative cutting edge strategies - rely more on post-planning field verification of benefits achieved.

Benefits: Fills a gap in the existing air quality management system to manage chronic pollution increases in high population growth areas of the country in order to preserve existing clean air areas. The recent history has shown this can be achieved in a way to stimulate local/tribal leaders' wise use of air resources promoting health, quality of life and the economic vitalities of our cities and communities.

This proposal benefits ecosystem protection and creates stronger opportunities for tribal government air quality management which could assist environmental justice goals.

Sectors/Categories Recommendation Applies to: The proposal provides new oversight to minor source and area source pollution management, enhances mobile source management in high population growth areas.

Tools Needed: Yes – many are needed. Considerable effort is required to develop a comprehensive listing. Other stakeholders beyond the Subcommittee should be engaged.

Priority: High

June 19, 2006
Recommendation #5
BOUNDARIES
AQM Subcommittee Team 1, Group 2

Recommendation

The AQM subgroup recommends the use of "regional airsheds" to approximate the boundaries of emission source areas most likely to contribute to nonattainment areas. Such areas would form a rough approximation of the Area of Influence (AOI) concept recommended by the FACA. Areas of violation (AOV), also recommended by FACA, can be applied simply as the areas not meeting ambient air standards (i.e., existing nonattainment areas) with the main goals of targeted outreach for protection of health and emission control requirements designed to keep the local and downwind air quality from getting worse. The subgroup further recommends that regional multi-state organizations be used as the coordinating vehicle for management of the Airshed Planning Regions.

It is recognized that many air pollution problems are highly localized and/or isolated in nature and do not need extensive regional coordination. Provided that the jurisdictions involved in such situations can agree that "local" treatment is appropriate, there is no reason to require that the areas be included within a regional airshed.

Background/Explanation

The Clean Air Act is generally geared toward addressing air pollution at the local level, focusing mostly on acute impacts from specific pollution sources. While successful for air pollutants with limited transport range, other pollutants such as ozone and small particles have been much more resistant to the "local problem – local control" concept.

Some provisions under the current Clean Air Act that allow EPA to issue rulemaking to address pollution on regional and national scales, typically focusing on specific pollution sources (MACT, heavy-duty diesel, Tier 2, etc.), but sometimes also more general (NOx SIP call, CAIR, etc.). EPA's stated goal is to reduce pollution from these sources enough that states and tribes can meet attainment by enacting a reasonable amount of local controls.

In order to target widespread ozone nonattainment spanning several states, the Clean Air Act specified that the Ozone Transport Commission be created, consisting of 13 states and the District of Columbia in the Northeast in order to create a formal forum for interstate planning purposes. Generally speaking, this exercise has been a success and regional ozone levels have dropped significantly. Outside the Northeast, most states have worked independently to develop their SIPs or have banded together on a piecemeal basis to address emissions. Today, there are still many areas still suffering regional ozone nonattainment.

As ambient air pollution standards become more protective, localized pollution controls have become more difficult to identify and more costly to implement. The OTAG process demonstrated that certain pollutants such as ozone defy state boundaries and that some states

could not reach attainment without more regionally and nationally coordinated emission reductions. Thus the need for regional coordination has increased greatly for pollutants with longer atmospheric lifetimes (ozone, small particles, etc.) Section 126 petitions have been filed by states desperate to reduce upwind emissions.

There was a strong feeling from the subgroup that the most scientifically correct boundary recommendations stem from the area of influence (AOI) / area of violation (AOV) concept originally proposed by FACA. It is an approach that is designed to succeed efficiently and cost effectively. Unfortunately, the AOI/AOV concept has never been seriously considered for full implementation because of the complexity in defining the area of influence. Area of influence is a complicated concept in which boundaries can change under differing weather patterns.

Challenges Addressed

1. Determine meaningful boundaries
2. Transform the SIP process
3. Deal with pollution transport

NAS Recommendations Addressed

Scenario

2/3 – Partial implementation through a stretch of the current CAA, but full benefit may require revisions to the CAA.

Recommendation Actions

The regional airshed concept is based on the scientific principle that topography, weather patterns, and pollution sources combine to create their own boundaries and that it is this boundary that needs to be managed in order to most effectively meet clean air goals. An example of airshed management is the Ozone Transport Region in the Northeast. Several states with a common problem, high ozone levels, were grouped together so that they can combine resources to meet a common goal. Combined, the states are charged with identifying air pollution reduction measures that can be implemented regionally, and thus lowering implementation costs and economic competitiveness between partner states. The concept has been an unprecedented success although when created it was not anticipated how great the inter-airshed transport would be. For regional airsheds to be effective, lessons should be learned from what works and what does not with the Ozone Transport Region. Scientifically correct airshed also need to be defined in other regions of the country so that those regions can benefit from the expanded coordination.

It is recognized that not all air pollutants and nonattainment areas are in need of regional treatment. Assuming the jurisdictions involved within the region agree to treat the situation "locally", there is no reason to require additional regional airshed planning.

Regional Planning Organizations (RPOs) developed for regional haze planning were an attempt to develop a form of airshed management, but during the formation, certain states did

not want to get clustered with certain other states and the end result of the RPO boundaries became an airshed/political boundary hybrid. In order to work, the airshed boundaries need to be developed based on the science, starting with regions demonstrating measured air pollution commonalities as well as common source types. Rather than creating a new set of planning organizations, the multistate organizations could serve to bring the airsheds together with the requirements of seeking common solutions. Airsheds would seek to cover multiple pollutants whenever possible, but airsheds may ultimately need modifications to accommodate other pollutants.

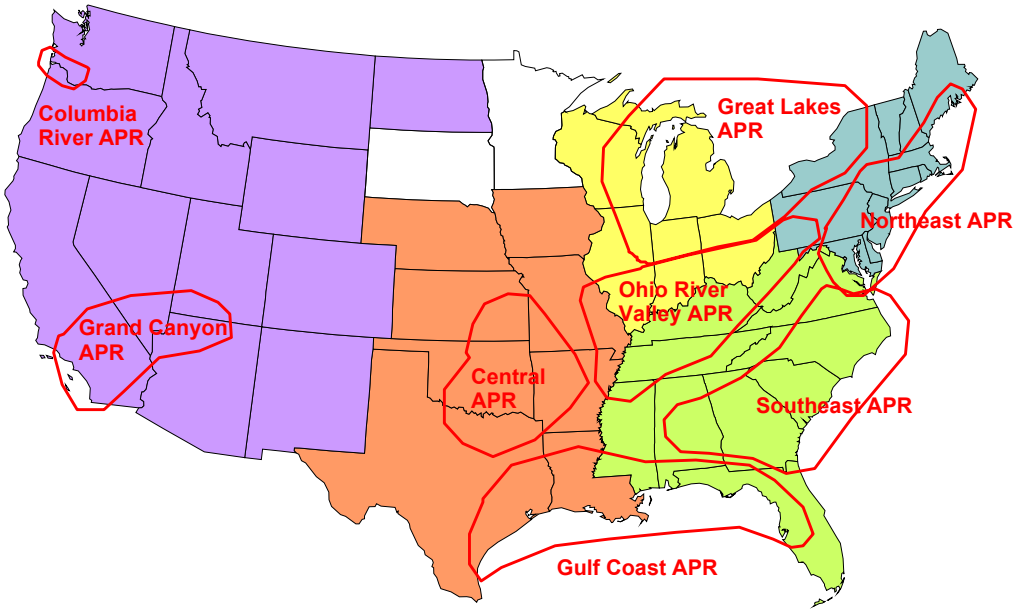
Key Points

- Nonattainment areas will still represent areas with poor air quality and be the focus of state/tribal SIPs
- Airshed Planning Regions look at the regional context of air pollution sources and how it affects nonattainment areas and other areas of poor air quality. Efforts should be focused on building successful state/tribe interrelations and SIPs.
- Regional multi-state organizations (MSOs) will provide the forum for bringing the regional states together for coordination and planning.
- National - EPA will still need to seek out pollution controls that are best implemented on a national or sub-national level and will provide resources as needed to study air pollution emissions, transport, and the coordination of the MSOs so that transport and airsheds that span across broad regions are properly considered.

Considerations for Defining Airshed Planning Regions (APR)

- Resist use of political boundaries when defining airsheds.
- Monitoring and major sources/source regions should be considered.
- Regional modeling and meteorological modeling should also be considered.
- Nonstandard forms of measurements such as aircraft, balloon, satellite, mountain-top, building/tower monitors could prove useful.
- While MSAs may be useful in identifying the urban extent of metropolitan emissions, the boundary is generally too small to be considered an airshed.
- Once an airshed is defined, efforts should be made to understand the science of what creates it, special topographical and meteorological issues, population health risk, and other environmental and socioeconomic impacts.
- Airshed Planning Regions could contain several nonattainment areas.
- Airshed Planning Regions would not necessarily include entire states, nor would they necessarily be entirely contained within the MSOs.
- The MSOs may contain multiple Airshed Planning Regions
- States may opt into upwind and downwind airsheds.

Example of what regional Airsheds may look like:



Implementation

Implementation of Airshed based boundaries will be scientifically intense up-front, but once implemented, maintenance of it should provide cost savings to the system as a whole with more cost effective air pollution control strategies more than making-up for increased costs of regional coordination.

In order to for the airshed concept to work most efficiently, the airshed boundaries need to be developed based on the science, starting with regions demonstrating measured air pollution commonalities as well as common source types. Rather than creating a new set of planning organizations, regional MSO structures could serve to bring the airsheds together with the requirements of seeking common solutions. Airsheds would seek to cover multiple pollutants whenever possible, but airsheds may ultimately need modifications to accommodate other pollutants.

In defining regional airsheds, every attempt should be made to clearly define the airsheds as simple, but scientifically sound regions, down to the county level. Politically convenient boundaries should only be used as a tie-breaker where scientific data doesn't show a preference. It should be further noted that local, regional, super-regional, and national pollution controls may still be most practical on a case-by-case basis and thus should be considered during the air quality planning process.

Benefits

Improves and better coordinates interstate planning and rulemaking to more accurately reflect the science of air pollution formation and transport. Ultimately there will be overall cost savings through implementing emission controls in areas where they are most likely to

be effective. The airshed system should also prove more successful in achieving and maintaining attainment of the most persistent air pollutants.

Sectors/Categories Recommendation Applies to

While some categories could be singled-out for initial implementation, all categories should ultimately be included under this recommendation.

Tools Needed
TBD

Priority
High - Forms basis for many other Subcommittee recommendations

Episodic Control Measures
Recommendation #6
Team 1, Group 2
June 19, 2006

Recommendation: Expand the use of episodic control measures to attain and maintain ambient air quality standards in areas where all reasonable continuous control measures have already been required.

Background/Explanation

In recent years, a number of communities across the U.S. have developed public information campaigns and voluntary programs designed to reduce emissions on specific days when high ozone concentrations are expected. Some of these communities have implemented broad-based ozone action programs that encourage an array of voluntary measures by individuals and businesses to reduce emissions. Other communities have explored or adopted specific mandatory measures to reduce emissions, including restrictions on recreational vehicles, lawn and garden equipment, pesticide application, road paving, traffic marking, construction activities and the operation of waste incinerators. Some communities have also developed programs to reduce particulate emissions, e.g., through restrictions on open burning and curtailment of residential wood combustion, on days when high PM concentrations are expected. However, despite the growing interest in peak day emission reduction programs, the U.S. air quality management system continues to be characterized by an overwhelming reliance on continuous control measures.

Efforts to expand peak day emission reduction programs would benefit from increased research and technical assistance to communities regarding successful program design, implementation and program evaluation. However, the greatest opportunities for expanding these programs may come from the elimination of legal restrictions concerning the use of intermittent controls.

In 1977 Congress considered and explicitly rejected the use of "intermittent" controls as part of a SIP for achieving the NAAQS. This prohibition was aimed at avoiding reliance on temporary controls where more reliable continuous controls were presumed to be readily available. It was also intended to prevent the shifting of pollutants (e.g., by utilities with widely dispersed production capacity) from one place or time to another, without a corresponding decrease in overall pollution levels. Given the extent to which continuous controls have been deployed over the past 30 years, and the considerable strides that have been made in air quality forecasting, the concerns expressed by Congress in 1977 no longer appear to be germane.

EPA has concluded that the Clean Air Act does not restrict SIP approval (or credit) for episodic reduction measures that apply to consumer products or services, or to certain (i.e., non-stationary) consumer actions, since these measures may represent the only feasible type of control. EPA has also concluded that episodic transportation control measures and certain other mobile source measures may be approved for SIP credit under certain circumstances. However, EPA maintains that the Clean Air Act restricts the use of intermittent controls at *stationary sources* as part of an approvable SIP.

Legal issues notwithstanding, episodic control measures at stationary sources could provide a new set of cost-effective control opportunities capable of yielding large emission reductions precisely where and when they are most needed. For example, electric power producers and certain industrial sources may have latitude to burn cleaner fuels or to increase the utilization of cleaner units on high pollution days. Even on the hottest days, power plants may operate well below capacity at night and during the early morning hours, which may allow dispatchers to shift more production to their cleanest units at those times. In addition, power producers may be able to achieve reductions by importing electricity at key times from cleaner sources outside of the region. In addition, some large and small scale manufacturing operations may have the ability to alter their production schedules and/or operations to reduce emissions on predicted high pollution days.

Problems/Challenges Addressed

- Ozone nonattainment is predominantly an episodic problem. With few exceptions, areas struggling to meet the 8-hour ambient air quality standard for ozone are at risk of exceeding the standard on a limited number of days during the warm weather months, when precursor emissions and meteorological conditions can combine to form peak ozone concentrations.
- Under EPA's proposed new daily standard for fine particles, nonattainment is also likely to be an episodic problem for many communities across the country, although depending on the area, peak PM2.5 concentrations may occur in different seasons throughout the year.
- Despite the episodic nature of ozone and PM2.5 pollution, the air quality management system in the U.S. has been dominated by the use of continuous control strategies.
- Many areas are unable to expeditiously attain and maintain the ozone and PM2.5 short-term standards through the exclusive use of continuous control measures and, as a result, their populations will encounter periods of exposure to unhealthy ozone and/or fine particle concentrations for years to come.

NAS Recommendation Addressed

- Meeting the NAAQS for ozone and PM2.5 and reducing regional haze
- Ensuring environmental justice

Scenario: Noted after each recommendation.

Recommended Actions

- Expand federal research and technical assistance to communities regarding the design, implementation and evaluation of successful programs to reduce peak day emissions from non-stationary sources (scenario 1).
- Expand the use of stationary source episodic control measures as a backup insurance mechanism (i.e., outside the scope of an approved SIP) for areas struggling to maintain the short-term ambient standards (scenario 2).

- Remove any legal uncertainty regarding SIP credit for intermittent controls at stationary sources (scenario 3).

Implementation: If the use of episodic control measures is to be expanded – and more fully extended to stationary sources – a number of implementation issues must be addressed, including:

- What role should these measures play in the air quality management system? Should they be mandatory or voluntary in nature? When should they be given credit in an air quality management plan?
- How can the results of such programs be measured?
- Since any measure that can interrupt or alter manufacturing operations may have significant and complex business impacts, how should these impacts be assessed and appropriately reflected in the design of a mandatory program?
- How far can EPA and states go in developing episodic control measures for stationary sources under existing legal authorities?
- How well can high pollution days be predicted and how best can episodic measures be called into effect?
- What stationary source control measures might be suitable candidates for episodic implementation?

Benefits

- Episodic control measures can provide an expanded set of cost-effective control opportunities for states and local communities. These measures are capable of yielding sizable emission reductions when they are most needed.
- A variety of measures which could not be implemented on a continuous basis could prove suitable and acceptable for episodic use.
- For areas that are struggling to *attain* ambient air quality standards, despite the imposition of all feasible continuous controls, the use of episodic control measures can accelerate air quality progress, and provide the "final stroke" needed to achieve attainment without undermining the role of continuous controls.
- For areas that are struggling to *maintain* ambient air quality standards, episodic control measures can serve as a backup insurance mechanism by preventing air quality violations on days when meteorological conditions might otherwise stress a local air quality management plan beyond its breaking point.
- By reducing peak concentrations on the highest pollution days, episodic control measures can provide considerable health and environmental benefits to all effected populations.

Sectors/Categories Recommendation Applies to: All

Tools Needed

- Additional research and technical assistance on the successful design, implementation and evaluation of voluntary programs designed to achieve peak day emission reductions.

- Sector-specific engineering and cost data to assess (and quantify) the potential contribution of stationary source episodic control measures.
- State-of-the-art methods for predicting potential ozone and PM.2.5 exceedance days.

Priority: [TBD]

TEAM 1: Group 3
Proposed Coordination Strategies for Air Quality, Land Use, Energy, Transportation and Climate

[NOTE TO READER: This document represents Group 3's work product as of June 15, 2006. It contains seven recommendations and reflects changes made to address Subcommittee feedback provided at and following the May RTP meeting.]

INTRODUCTION

The Subcommittee on Air Quality Management ("AQM Subcommittee") is developing recommendations for long-term changes to the air quality management system based on the National Research Council's recommendations in its 2004 report entitled "*Air Quality Management in the United* States". Team 1 to the AQM Subcommittee is designing a proposed process for managing air quality and has divided its work into various issue areas. We were asked to address Issue 3. Specifically, *we were asked to propose ways in which the AQM framework of the future should coordinate with other programs such as land use, energy, transportation and climate*.

Land use, transportation and energy policies and programs are intertwined with air quality policies and programs. Specifically, land use, transportation and energy policies and programs can conflict with or frustrate attaining national air quality goals. Conversely, air quality policies and programs can conflict with or frustrate national transportation and energy goals. With these basic understandings in mind, the guiding principal for Issue 3 is that our nation's land use, transportation and energy policies and programs and our nation's air quality policies and programs must be aligned to serve consistent objectives.

During Group 3's discussions, there was considerable debate regarding the extent to which Group 3 should address climate. Some stakeholders believed that it was inappropriate for the AQM Subcommittee to address climate in any manner. Other stakeholders believed that it was essential for the AQM Subcommittee to address climate. After significant discussion, the Group 3 stakeholders agreed to a compromise position. Specifically, for purposes of the draft proposals set forth below, Group 3 agreed to pursue recommendations focused on information gathering and coordination and recommendations that recognized, without undermining, the various climate initiatives underway at state and local levels. Group 3 agreed that it would not entertain recommendations that mandate or advance climate change policy or proposals that give the United States Environmental Protection Agency ("EPA") a preemptive or preeminent role in climate change programs or policies.

RECOMMENDATION 1: THE AQM PROCESS SHOULD SUPPORT TRANSPORTATION AND LAND USE SCENARIO PLANNING AT THE MULTI-JURISDICTIONAL, TRIBAL AND LOCAL LEVELS AND OTHER MEANS TO IDENTIFY EMISSIONS REDUCTION OPPORTUNITIES AND IMPROVE TRIBAL AND LOCAL ENGAGEMENT.

BACKGROUND/EXPLANATION: Tribal and local governments have critical control and approval authority over land use choices that significantly impact air pollution, transportation systems (which some would argue is the most critical driver of locally controlled development), air pollution, energy use and greenhouse gas emissions. Multi-jurisdictional planning organizations[1] are also significantly involved in local land use and transportation planning in several ways, including by providing technical planning support to local governments. For example, tribal and local governments and multi-jurisdictional planning organizations have the power to determine or influence the way in which land is developed, how auto use and transportation patterns evolve, which land is opened to development, and whether local funds and land use are used to support mass transit, rather than discourage it. Some may also influence whether energy efficiency or demand side management techniques are required or implemented (e.g., in residential and commercial development). There is no single Federal requirement for coordination among transportation, land use and air quality, although metropolitan and statewide transportation planning must address land use and air quality factors and the transportation conformity process seeks to conform transportation planning to the SIP's purpose of reducing violations and contributing to attainment of national ambient air quality standards. By virtue of their role in these multiple areas, multi-jurisdictional planning organizations and tribal and local governments have a unique opportunity to coordinate air quality, land use, energy, transportation and climate programs. For these and other reasons, Recommendation 1 is that multi-jurisdictional planning organizations and tribal and local governments should be an integral part of the AQM process.

Group 3 recognizes that considerations such as quality of life are often the drivers for tribal and local governments (often with the support of multi-jurisdictional planning organizations) to recommend and adopt land use and other practices that are also good for air quality. Group 3 believes that EPA can play a constructive role in supporting such practices by providing tools and resources to assess air quality benefits of alternative land use scenarios.

PROBLEMS/CHALLENGES ADDRESSED: This recommendation addresses the following problems/challenges: (1) meeting the NAAQS for ozone and PM2.5 and reducing regional haze; (2) addressing air quality on the appropriate geographic scale (locally, regionally and globally); (3) addressing remaining pollution problems, including unregulated and smaller "area sources," and (4) coordinating air quality, energy, transportation and urban planning strategies.

[1] For purposes of Recommendation 1, "multi-jurisdictional planning organizations" include, but are not limited to, multi-state organizations such as State DOTs, MPOs, RPOs, COGs, nonprofit planning organizations and independent system organizations.

NAS RECOMMENDATION ADDRESSED: This recommendation addresses and/or supports the following NAS recommendations: (1) expand national and multistate performance-oriented control strategies to support local, state and tribal efforts; and (2) transform the SIP process into a more dynamic and collaborative performance-oriented, multipollutant air quality management plan process.

SCENARIO: 1 (This recommendation includes an examination of the advantages of scenario planning. Any future proposal for mandatory scenario planning would need to respect responsibilities of different levels of government. Statutory changes would be required to achieve mandatory scenario planning.)

RECOMMENDED ACTIONS:

In order to achieve enhanced multi-jurisdictional planning organization and tribal and local government involvement in the AQM process and better coordination of AQM, land use, energy, transportation and climate programs, the AQM process should be modified so that multi-jurisdictional planning organizations and tribal and local government choices are better integrated with, and become a meaningful input into, Federal, State and Tribal AQM processes. In order to accomplish this objective:

A. EPA should encourage States and Tribes to coordinate with multi-jurisdictional planning organizations and tribal and local governments, including by aligning planning schedules at the State and local levels. EPA should provide resources to multi-jurisdictional planning organizations and tribal and local governments so that they can better understand the impact that their land use, energy, and transportation decisions will have on air quality and greenhouse gas emissions. To that end, EPA (in consultation and coordination with DOT, EPA, States and Tribes) should assist where appropriate in linking up multi-jurisdictional planning organizations and tribal and local governments that are actively implementing integrated planning approaches (e.g., Sacramento, Portland, Chicago, Minneapolis) with those that are considering but not yet implementing such approaches (e.g., Atlanta).

   Additionally, EPA (drawing on outside expertise) should develop a clearinghouse of planning related resources and tools. Over the longer term multi-jurisdictional planning organizations and tribal and local governments need more sophisticated transportation and land–use models that adequately capture local land design issues, bicycle and pedestrian travel and induced demand. These models will need to be supported by high quality, sufficiently disaggregated land use and travel data. In the short term, regions, communities and tribal entities need scenario analyses and visioning tools that allow them to understand, visualize and quantify the opportunity costs of business-as-usual development trends and the benefits of more efficient transportation and land use scenarios. It is important to respect that local land use and transportation infrastructure decisions are typically driven more by quality of life and economic concerns than by air quality and environmental issues. Thus it is critical that scenario analysis tools address multiple factors (such as emissions, mobility,

consumer fuel costs, water quality, infrastructure costs, etc.) of concern to the public elected officials, and the private sector.

B. EPA (in partnership with States, Tribes and DOT and in consultation with other interested stakeholders) should encourage multi-jurisdictional planning organizations and tribal and local governments to conduct a visioning and scenario planning process in which the area in question decides where it wants to be in X years with regard to land use, transportation and energy and adopts a plan to incorporate the necessary policies and ordinances that further its vision. These efforts should be coordinated with and supported by the transportation planning process. This could produce an "integrated" strategy that addresses land use, energy and transportation in a manner that is directionally correct for air quality or explicitly tied to attainment. Moreover, as part of their visioning and scenario planning process, multi-jurisdictional planning organizations and tribal and local governments should be encouraged to work with state and/or tribal planning organizations to identify strategically-located local communities that are appropriate for new fuel and energy generation, storage, transportation technologies and facilities, and infrastructure requiring changes to the existing land and built environment.

C. EPA (in partnership with States, Tribes, and DOT and in consultation with other interested stakeholders) should explore the advantages and disadvantages of mandatory and voluntary visioning and scenario planning that, among other things, identifies the environmental benefits and detriments of various land use choices. Such a program could be conducted as part of the multi-jurisdictional planning organization's or tribal or local government's transportation planning and air quality planning process.[1] If it is determined that a mandatory program is appropriate, significant changes would be required not just to the AQM system, but to the transportation planning and conformity processes and underlying statutes.

D. EPA should allow SIP/TIP credit and make available other forms of recognition or alternative "credit" for multi-jurisdictional planning organizations and tribal and local governments that revise their land use laws consistent with EPA's model goals and ordinances, or that implement quantifiable land use, energy or transportation technologies or approaches that benefit air quality.

IMPLEMENTATION:

For Recommendation A, to link up multi-jurisdictional planning organizations and tribal and local governments on integrated planning approaches, EPA should develop a plan in consultation with States, Tribes, DOT and the various associations that represent municipalities (e.g., National Association of Regional Councils). The plan should include a mechanism for facilitating communication and scheduling between and among

[1] A recommendation to mandate scenario planning for Transportation Improvement Plans and Long Range Transportation Plans was initially developed by a group of transportation, land use and air quality experts convened by the Center for Clean Air Policy and the Local Government Commission in December 2004. See http://www.ccap.org/transportation/smart_two.htm for more information.

multi-jurisdictional planning organizations and tribal and local governments, as well as issuing guidance.

Further, with respect to the clearinghouse of planning resources, EPA (drawing on outside expertise) should gather items that will help multi-jurisdictional planning organizations and tribal and local governments achieve planning and development practices that benefit air quality. The clearinghouse of resources should include, without limitation:

1) Modeling software that enables multi-jurisdictional planning organizations and tribal and local governments to model current and alternative land use patterns, energy trends and transportation options so that they can study how different future land use, energy and transportation scenarios would impact future emissions;
2) Modeling software that enables multi-jurisdictional planning organizations and tribal and local governments to quantify the emission reductions associated with certain land use, energy and transportation technologies or approaches;
3) On-line tutorials and manuals for using modeling software;
4) Model codes and ordinances that benefit air quality (e.g., model codes and ordinances that promote increased urban density, multiuse clustering, energy efficiency and public transportation);
5) Guidebooks that identify land use, energy and transportation technologies or approaches that benefit air quality and establish certain minimum steps that multi-jurisdictional planning organizations and tribal and local governments must take to obtain State Implementation Plan (SIP) or Tribal Implementation Plan (TIP[2]) credit when pursuing such technologies and approaches;
6) Model educational and citizen involvement practices; and
7) Guidebooks that identify funding opportunities for innovative land use, energy and transportation approaches.

In assembling this clearinghouse EPA should determine what resources have been developed and what items need to be enhanced or developed. EPA and the Federal Highway Administration (FHWA) currently provide some technical assistance and guidance on scenario planning tools and integrating transportation and land use planning. Increasing awareness of these existing tools will be straightforward and low cost. For the tools needing to be enhanced or developed, EPA should decide which ones to develop first based on stakeholders' needs.

To help ensure these tools are readily accessible to multi-jurisdictional planning organizations and tribal and local governments, EPA should make the clearinghouse available in a central place on the web. EPA should also consider featuring the tools at a conference with a particular emphasis on creating champions or advocates such as local politicians and land planners who can utilize the information to promote beneficial land-use practices in their respective communities.

[2] Throughout this document TIP refers to Tribal Implementation Plan and not Transportation Improvement Program.

The clearinghouse and the other recommendations in this proposal are intended to deepen current support and systematize it so that the benefits of these tools and approaches can be implemented more broadly. As such, the clearinghouse will require additional staff and financial resources for implementation, especially for new tool development.

For Recommendations B and C, to improve the effectiveness of scenario planning, EPA should partner with States, Tribes, local governments and DOT to support pilot transportation and land use scenario analyses in a few metropolitan regions across the U.S. These pilot efforts would test the premise that alternative scenario analyses can identify cost-effective emissions reduction options that would otherwise be missed in the current system that does not explicitly consider land use as a policy variable. In addition, the pilots would assess whether scenario analyses yield persistent emission reduction strategies that will help maintain air quality and aid in meeting future SIP/TIP objectives. These pilot efforts should be designed to fully understand what is involved with making it a mandatory feature of AQM and inform how a scenario analysis requirement would be structured and implemented. EPA should partner with States, Tribes and DOT in this effort of piloting scenario analyses and in determining what next steps would be necessary to make use of scenario planning more widespread, including consideration of whether making such analyses mandatory should be proposed.

For Recommendation D, EPA should give States and Tribes the option to include the visioning and scenario planning process as an input into their SIPs or TIPs in one of three ways: as a measure in the baseline, a measure warranting credit, and/or a growth assumption. EPA has developed several useful guidelines for calculating SIP and TIP credit. For example, EPA has provided guidance on SIP credit for emission reductions from electric sector energy efficiency and renewable energy projects and plans to provide guidance on SIP credit for Emission Reductions from Highway and Off-Road Diesel Vehicles and Retrofits. EPA should continue developing guidelines for calculating SIP and TIP credit associated with other land use, energy and transportation technologies and approaches and should work with EPA regional offices and in consultation with States and Tribes to follow such guidelines for purposes of SIP and TIP planning and development. Specifically, EPA should develop guidance that explains how areas can get SIP/TIP credit for well documented land use measures that multi-jurisdictional planning organizations and tribal and local governments adopt that yield emission reductions. EPA should also develop new guidance to allow SIP/TIP credit where the total reductions for voluntary strategies would exceed the 3 or 6 percent under current guidance. See Group 3's Recommendation 2 for implementation measures that EPA could pursue to further credit and other recognition programs outside the SIP/TIP process.

BENEFITS: Current land use and transportation decisions will impact emissions over many decades. Providing multi-jurisdictional planning organizations and local and tribal governments with tools and resources to better understand the interaction among land use, transportation, energy and GHG emissions will empower them to make better decisions over the short and long-terms. Alternative transportation and land use scenario analyses have been used to identify cost-effective emissions reduction options that would

otherwise be missed in the current system that does not explicitly consider land use as a policy variable. In addition to emissions benefits, smart growth policies can yield multiple benefits on issues of significant public and private sector concern including: energy security, exposure to traffic congestion, ecosystem preservation, reduced infrastructure costs and protection of water resources.

SECTORS/CATEGORIES RECOMMENDATION APPLIES TO: mobile, stationary and area

TOOLS NEEDED: The tools needed are described in detail in the "Implementation" section above and cover issues related to better understanding and addressing the interactions among transportation, land use, energy, air quality and GHG emissions.

PRIORITY: High. Improved tools and understanding of the effects of current development patterns is needed. Given the long-term impacts of land development and transportation decisions, delayed action on smart growth measures will continue impacts of development patterns well into the future.

RECOMMENDATION 2: THE AQM PROCESS SHOULD INCLUDE INCENTIVES (INCLUDING, BUT NOT LIMITED TO, MORE FLEXIBLE FORMS OF CREDIT, REGULATORY INCENTIVES AND ECONOMIC INCENTIVES) FOR VOLUNTARY AND INNOVATIVE LAND USE, ENERGY, AND TRANSPORTATION TECHNOLOGIES OR APPROACHES.

BACKGROUND/EXPLANATION: The AQM process should include incentives for voluntary and innovative land use, energy, and transportation technologies or approaches that benefit air quality in nonattainment and other areas. Innovative technologies and approaches that should be encouraged include, without limitation, low emission technologies, smart growth, energy efficiency measures, cogeneration, demand-side management and renewable resources. The AQM process should better integrate incentives that encourage these technologies and approaches into the NAAQS implementation process. Incentives could include, but are not limited to:

- more flexible forms of SIP and TIP credit,
- regulatory incentives (such as expedited or streamlined permitting opportunities) and economic incentives (such as tax incentives, public benefits programs,
- state and utility funding programs for energy efficiency projects), where appropriate and properly structured, and
- recognition programs or forms of alternative "credit" for communities that implement voluntary and/or innovative land use, energy or transportation policies, programs or practices that benefit air quality.

While EPA has already developed incentives for voluntary and innovative measures that address the above objectives (e.g., 2001 Economic Incentive Guidance), many stakeholders are unaware of these programs.

PROBLEMS/CHALLENGES ADDRESSED: This recommendation addresses the following problems/challenges: (1) meeting the NAAQS for ozone and PM2.5 and reducing regional haze; (2) addressing air quality on the appropriate geographic scale (locally, regionally and globally); (3) addressing remaining pollution problems, including unregulated and smaller "area" sources; and (4) coordinating air quality, energy, transportation and urban planning strategies.

NAS RECOMMENDATION ADDRESSED: This recommendation addresses and/or furthers the following NAS recommendations: (1) expand national and multistate performance-oriented control strategies to support local, state and tribal efforts; and (2) transform the SIP process into a more dynamic and collaborative performance-oriented, multipollutant air quality management plan process.

SCENARIO: 1, 2 or 3 depending on the incentive (e.g., self certification incentives would be Bin 1, permit streamlining would be Bin 2, and tax credits would be Bin 3)

RECOMMENDED ACTIONS:

A. EPA should develop a communication strategy to inform interested stakeholders about those programs that already exist. (Identification and development of communication tools to disseminate information regarding existing programs intended to motivate voluntary and innovative technologies and approaches is referred to Team 1, Group 4.)

B. EPA should continue to develop new programs that motivate voluntary and innovative measures. Appropriate and properly structured incentive programs such as expedited and streamlined permitting opportunities, the Texas TERP program, EPA's Performance Track Program, and innovative measures such as voluntary mobile emissions reduction programs ("VMEP") and projects funded by Congestion Mitigation and Air Quality (CMAQ) funds can, in the aggregate, make greater overall contributions to future SIPs and TIPs than they have in the past. (Identification and development of tools to motivate voluntary and innovative technologies and approaches is referred to Team 2.)

C. Current SIP approval requirements have recently been made incrementally more flexible in crediting such measures, but they still require a ton-denominated precursor reduction applied to each such measure. The AQM process should establish more flexible forms of credit for such measures. EPA should assist in determining and providing SIP and TIP credits for energy efficiency and renewable energy programs.

D. With respect to community recognition programs, EPA should compile a list of existing recognition programs (e.g., Indiana CLEAN Community Challenge), their strengths and weaknesses and what the recognizing entity offers as an incentive to areas that implement environmentally beneficial measures (e.g., technical assistance, public recognition, cash awards). Drawing from this research, in partnership with other organizations that work with local governments, EPA should develop a community recognition or other alternative "credit" program for nonattainment and other areas that adopt voluntary and/or innovative land use, energy or transportation policies, programs or practices that benefit air quality. EPA should develop clear criteria for how an area would qualify for this recognition or alternative "credit".

IMPLEMENTATION: Recommendations A and B are referred to Team 1 Group 4 and Team 2, respectively. For Recommendation C, EPA should consider the predicted effects of a package of measures presented in a SIP or TIP, potentially over a longer time horizon than the SIP review period. Specifically, EPA should identify or develop model land use, transportation and energy planning documents that address SIP/TIP credit issues applicable to each voluntary and innovative measure that Team 2 identifies pursuant to Recommendation B. Among other things, the model documents should demonstrate how to quantify emission reductions expected from each identified measure in a manner where they can be considered for SIP or TIP credit. EPA should also encourage adaptive plan

revisions as indirect effects of innovative measures become better understood, which is consistent with current SIP requirements for reasonable emission reduction progress checks. The implementation challenge for this recommendation will be identifying appropriate targets for emission reduction initiatives and quantifying the air quality benefits expected or actually achieved as a result of any one initiative.

BENEFITS: This recommendation shifts the focus for new programs away from traditional command and control strategies to strategies that are the most likely to be effective in achieving additional air pollution gains in the areas of land use, transportation and energy planning.

SECTORS/CATEGORIES RECOMMENDATION APPLIES TO: mobile, stationary and area

TOOLS NEEDED: Recommendations A and B are referred to Team 1 Group 4 and Team 2, respectively. For Recommendation C, EPA should identify or develop model land use, transportation and energy planning documents that could be applied in other jurisdictions for SIP/TIP credit.

PRIORITY: High

RECOMMENDATION 3: AN INTER-AGENCY LIAISON GROUP SHOULD BE ESTABLISHED WITH EPA AND OTHER FEDERAL AGENCIES (e.g., FAA, HUD, DOE, NRC, FERC, USDA, CDC, DOI AND DOT) TO EXPLORE ISSUES AND OPPORTUNITIES FOR COORDINATING LAND USE, ENERGY, TRANSPORTATION, GREENHOUSE GAS AND AIR QUALITY GOALS.

BACKGROUND/EXPLANATION: Land use, transportation and energy policies and programs are inextricably intertwined with air quality policies and programs. Specifically, land use, transportation and energy policies and programs can conflict with or frustrate attaining national air quality goals. Conversely, air quality policies and programs can conflict with or frustrate national transportation and energy goals.

Federal agencies already coordinate their activities to some extent. For example, when EPA undertakes a major rulemaking, the Office of Management and Budget's (OMB) Office of Information and Regulatory Affairs (OIRA) facilitates an inter-agency review process to ensure other federal agencies have an opportunity to review and provide comment on EPA rulemakings. Moreover, Executive Orders 13211 (May 18, 2001) and 12866 (September 30, 1993) require Federal agencies to prepare a Statement of Energy Effects when undertaking certain actions that promulgate or are expected to lead to the promulgation of a final rule or regulation that is likely to have a significant adverse effect on the supply, distribution or use of energy. A Statement of Energy Effects must include, among other things, detailed information regarding any adverse effects the agency action will have on energy supply, distribution, or use (including a shortfall in supply, price increases and increased use of foreign supplies). OIRA uses the Statements of Energy Effects to ensure that one federal agency's proposed actions do not conflict with another agency's policies or actions. Federal agencies must also publish their Statements of Energy Effects, or a summary thereof, in each Notice of Proposed Rulemaking and in any resulting Final Rule.

With the objective of enhancing the above efforts and facilitating earlier and more meaningful coordination between federal agencies and national programs and objectives, an Inter-agency Liaison Group ("ILG") should be established based on the guiding principal that our nation's land use, transportation, energy, greenhouse gas and air quality programs and objectives must be aligned to serve consistent goals. The ILG should include EPA and several other Federal agencies such as FAA, HUD, DOE, NRC, FERC, USDA, CDC, DOI and DOT.

The creation of a Federal coordination group has precedent. In the late 1970s EPA participated in the Interagency Regulatory Liaison Group or "IRLG." The IRLG brought together high level officials from EPA and other federal agencies to talk about policies and other issues of common concern. At least two current Air Quality Management Subcommittee members recall participating in the effort and feel it was highly effective.

PROBLEMS/CHALLENGES ADDRESSED: This recommendation addresses the following problems/challenges: (1) coordinating air quality, energy, transportation and

urban planning strategies and (2) maintaining AQM efficiency in the face of changing climate.

NAS RECOMMENDATION ADDRESSED: This recommendation addresses the following NAS recommendation: transform the SIP process into a more dynamic and collaborative performance-oriented, multipollutant air quality management plan process.

SCENARIO: 1

RECOMMENDED ACTIONS: An Inter-agency Liaison Group (ILG) should be established with EPA and other Federal agencies (e.g., FAA, HUD, DOE, NRC, FERC, USDA, CDC, DOI and DOT) to explore issues and opportunities for coordinating and aligning Federal agency goals and objectives on energy, land use, transportation, greenhouse gases and air quality. The purpose of the ILG would be to help ensure Federal agencies work together in achieving coordinated and integrated solutions to these issues.

In addition to periodically meeting, sharing information and working to align national programs and objectives, the ILG should work with OMB, CEQ and other interested stakeholders to develop a protocol under which federal agencies would (a) formally analyze major proposed federal rulemakings are likely to have significant impacts on national land-use, energy, transportation, greenhouse gas and/or air quality programs or objectives; (b) for those proposed major regulations that are likely to have such significant impacts, prepare Statements of Effects similar in content to the Statements of Energy Effects that Executive Orders 13211 (May 18, 2001) and 12866 (September 30, 1993) currently require; and (c) subject such Statements of Effects to public review and comment.

IMPLEMENTATION: The ILG should be established at the political or senior career level. It should include representatives from EPA's air office and from other Federal agencies such as FAA, HUD DOE, NRC, FERC, USDA, CDC, DOI and DOT. EPA should also create a lower level working group to implement the recommendations of the ILG. The ILG should use a Memorandum of Understanding (MOU) or other vehicle to establish a common understanding of its purpose and activities. The ILG should meet at least quarterly to share information and coordinate policies and programs.

In exploring and developing a protocol for analyzing and disseminating information regarding major proposed federal rulemakings, the ILG (working with OMB, CEQ and other interested stakeholders) should consider and address several issues, including what proposed federal regulations are covered and the appropriate scope and extent of analysis and public participation. In addition, to avoid duplicative analyses, to the extent that a federal agency is required to prepare an impacts analysis pursuant to another statutory or regulatory requirement (e.g., the National Environmental Policy Act) that is substantially similar to the analysis that the protocol requires, the protocol should allow the federal agency to use that analysis in lieu of preparing a new duplicative impacts analysis.

BENEFITS: This recommendation encourages policy makers to better coordinate national air quality, energy, transportation and greenhouse gas programs and objectives. The rulemaking protocol contemplated by this recommendation would provide policy makers and interested stakeholders information on significant impacts proposed major federal rulemakings would have on national air quality, energy, transportation and/or greenhouse gas programs and objectives. This information would allow policy makers and interested stakeholders to understand the degree to which proposed major federal rulemakings would further or undermine national air quality, energy, transportation and greenhouse gas programs and objectives, including identifying opportunities to reduce the potential for adverse air quality impacts.

SECTORS/CATEGORIES RECOMMENDATION APPLIES TO: mobile, stationary and area; federal agencies

TOOLS NEEDED: None immediately apparent; will depend on what initiatives ILG pursues.

PRIORITY: High

RECOMMENDATION 4: DEVELOP PROGRAMS THAT FOCUS ON REDUCING PUBLIC DEMAND FOR POLLUTING ACTIVITIES, ESPECIALLY NONESSENTIAL ACTIVITIES. SUCH PROGRAMS COULD INCLUDE INCENTIVE PROGRAMS FOR ENCOURAGING USE OF LOWER-POLLUTING ACTIVITIES, REDUCTION PROGRAMS, AND TAX AND USE RESTRICTIONS.

BACKGROUND/EXPLANATION: Most of our air quality management is directed at large scale sources of pollution, such as major industrial emitters. Although additional reductions from such sources are possible, further reductions may be achieved by encouraging the public to reduce activities that produce pollution or to pursue less polluting alternatives.

PROBLEMS/CHALLENGES ADDRESSED: This recommendation addresses the following problems/challenges: (1) meeting the NAAQS for ozone and PM2.5 and reducing regional haze; (2) addressing air quality on the appropriate geographic scale (locally, regionally and globally); (3) addressing remaining pollution problems, including unregulated and smaller "area" sources; and (4) coordinating air quality, energy, transportation and urban planning strategies..

NAS RECOMMENDATION ADDRESSED: The recommendation addresses the following NAS recommendations: (1) expand national and multistate performance-oriented control strategies to support local, state and tribal efforts; and (2) transform the SIP process into a more dynamic and collaborative performance-oriented, multipollutant air quality management plan process.

SCENARIO: 1, 2 or 3 depending on the incentive (e.g., education would be Bin 1, permit streamlining would be Bin 2, and tax credits would be Bin 3)

RECOMMENDED ACTIONS:

A. EPA should develop a social marketing and outreach strategy that includes, but is not limited to, helping the public make environmentally beneficial choices and understand the impact their decisions have on air quality. This marketing and outreach strategy should include approaches such as California's 3-star recreational watercraft labeling program and DOT/EPA's "Best Workplaces for Commuters" and "It all Adds Up to Cleaner Air" programs. EPA efforts should discourage activities that are nonessential or which create other environmental harm in addition to air pollution and encourage alternative activities that minimize environmental harm. As appropriate, EPA should consult with other Federal agencies and stakeholders in developing the strategies. (Identification and development of outreach strategy referred to Team 1, Group 4.)

B. EPA should evaluate options for discouraging (e.g., education, taxes, fees imposed on federal lands, use restrictions) nonessential activities and encouraging

(e.g., economic incentives, education, expedited or streamlined permitting opportunities) less polluting activities. For example, energy demand might be reduced through programs that educate the public about energy efficient practices or provide funding for energy efficiency and renewable energy projects. (Identification and development of tools for reducing demand for polluting activities is referred to Team 2.)

IMPLEMENTATION: Recommendation A is referred to Team 1, Group 4. Recommendation B is referred to Team 2. One implementation challenge will be possible resistance from industries that serve the demand for polluting activities. This resistance may be reduced by shaping programs to create opportunities for such industries to serve demand for activities with less air pollution impact.

BENEFITS: This recommendation would reduce air pollution at its source—the demand for activities that cause it. This recommendation would involve the public directly in the decisions individuals make that affect air pollution.

SECTORS/CATEGORIES RECOMMENDATION APPLIES TO: mobile, stationary and area

TOOLS NEEDED: Recommendation A is referred to Team 1, Group 4. Recommendation B is referred to Team 2.

PRIORITY: High. This recommendation is fundamental to addressing public activities and area sources.

RECOMMENDATION 5: ANALYZING EXISTING LAWS TO DETERMINE THE EXTENT TO WHICH THEY CAN BE USED TO ENCOURAGE POLLUTION PREVENTION, ENERGY EFFICIENCY AND RENEWABLE ENERGY AS THEY MAY BE EFFECTIVE IN REDUCING EMISSIONS.

BACKGROUND/EXPLANATION: Tremendous progress has been made in the U.S. reducing air pollution over the past 30 years using primarily command and control approaches. In addition, there are several environmental and energy statutes that directly or indirectly address energy efficiency, cleaner energy, and renewable energy as a means of achieving air quality objectives under the Clean Air Act. These statutes are amenable to a number of permissible interpretations and the regulations implementing them are amenable to a number of permissible regulatory frameworks.

For example, the Clean Air Act Amendments of 1990 establish prevention as "a primary goal" of the Act (see Title 1, Part A, section 101 (a) (3) and Section 101 (c)). The Act also addresses concerns of multi-media transfer of pollutants.

The Pollution Prevention Act establishes as national policy:

…that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible; and that disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner.

Similarly, the Energy Policy Act in Section 2108 (a) (titled Energy Efficient Environmental Program) states:

(a) PROGRAM DIRECTION- The Secretary, in consultation with the Administrator of the Environmental Protection Agency, is authorized to continue to carry out a 5-year program to improve the energy efficiency and cost effectiveness of pollution prevention technologies and processes, including source reduction and waste minimization technologies and processes. The purposes of this section shall be to--

> (1) apply a systems approach to minimizing adverse environmental effects of industrial production in the most cost effective and energy efficient manner; and
> (2) incorporate consideration of the entire materials and energy cycle with the goal of minimizing adverse environmental impacts.

A clean air strategy that takes full advantage of opportunities to use pollution prevention, energy efficiency and renewable energy measures may offer three advantages. First, such an approach could -- with a single investment – reduce multiple emissions and reduce and/or eliminate pollutants and emissions to other media, as well as emissions which are currently unregulated but which may be in the future. Second, viewed from a systems perspective (as the Energy Policy Act dictates) pollution prevention, energy efficiency

and renewable energy measures may be more cost-effective than command and control strategies. Third, pollution prevention, energy efficiency and renewable energy measures may help the United States accomplish important public policy goals outside the environmental and clean air arena, such as energy security, national security and homeland security.

PROBLEMS/CHALLENGES ADDRESSED: This recommendation addresses the following problems/challenges: (1) coordinating air quality and energy strategies; (2) meeting the NAAQS for ozone and PM2.5 and reducing regional haze; and (3) addressing impacts on specific communities (environmental justice).

NAS RECOMMENDATION ADDRESSED: This recommendation addresses the following NAS recommendation: transforming the SIP process into a more dynamic and collaborative performance-oriented, multi-pollutant air quality management plan process.

SCENARIO: 1 (However, the analysis that results from this proposal could require further action under Bins 1, 2 and/or 3)

RECOMMENDED ACTIONS:

A. EPA should examine the scope and extent of pollution prevention-based strategies permissible under the Clean Air Act, Pollution Prevention Act and Energy Policy Act; examine the cost-effectiveness of such strategies as compared to current regulatory strategies; and identify opportunities for taking advantage of pollution prevention-based approaches that may exist in the current legal framework, as well as examining enforceable regulatory requirements which allow for use of pollution prevention strategies where they prove to be more effective from cost- and performance-based perspectives.

B. Where prevention-based strategies offer the opportunity to achieve national goals such as greater energy independence and energy security, and/or where they allow the nation to accomplish reductions in greenhouse gas emissions as an ancillary benefit that impose little or no net cost to the nation, such strategies and authorities -- existing and prospective -- should be identified and delineated.

IMPLEMENTATION: For Recommendation A, EPA should convene a team including the Environmental Law Institute, Energy and Environmental Analysis, Inc. (Joel Bluestein), the State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO), National Association of State Energy Officials (NASEO), American Council for an Energy Efficient Economy (ACEEE), DOE's energy laboratories, Electric Power Research Institute, Environmental Council of States (ECOS), and representatives from the tribes, industry and environmental advocacy groups, to thoroughly examine the scope and extent of pollution prevention-based strategies permissible under the Clean Air Act, the Pollution Prevention Act and the Energy Policy Act, including pertinent rules, regulations and other policy documents. The review and analysis should include examples of where

pollution prevention strategies have been tried and used and where opportunities exist to further the use of these prevention-oriented strategies.

Second, for recommendations A and B, EPA should convene an analytical team including EPA, DOE, National Renewable Energy Laboratory (NREL), STAPPA/ALAPCO, NASEO, ECOS, and representatives from the tribes, industry and environmental advocacy groups, to gather all pertinent information and data on the pollution prevention provisions of all pertinent statutes, rules, guidance and other pertinent policies. In addition, the team should gather and analyze performance and cost data on energy efficiency and renewable energy technologies in order to examine their performance and cost-effectiveness as compared to current regulatory strategies in achieving air quality objectives and providing other ancillary benefits.

The above two teams should be asked to merge their findings and any proposed recommendations into a single document and to present that document to EPA and DOE for consideration.

BENEFITS: Meeting air quality objectives (multi-pollutant reductions, including CO2) in the most cost-effective manner; lower compliance costs; lower administrative costs; conservation of fuels and resources; enhanced national and energy security; reduction in greenhouse gases at little or no additional expense; providing new, clean sources of electricity generation; and enhanced local and regional economic development.

SECTORS/CATEGORIES RECOMMENDATION APPLIES TO: energy sector; energy customers

TOOLS NEEDED: Assembly of the two teams mentioned in the implementation section above. No other tools are necessary.

PRIORITY: High

RECOMMENDATION 6: EPA SHOULD WORK WITH STATE AIR AND ENERGY ORGANIZATIONS, TRIBAL GOVERNMENTS AND REGIONAL AIR QUALITY PLANNING ORGANIZATIONS TO OVERCOME POTENTIAL BARRIERS TO CLEAN ENERGY/AIR QUALITY INTEGRATION.

BACKGROUND/EXPLANATION: Many States have developed programs to implement energy efficiency/renewable energy measures. Several States have expressed interest in implementing energy efficiency/renewable energy measures to help achieve State air quality objectives. Toward that end, EPA has established the Clean Energy-Environment State Partnership Program, a voluntary state-federal partnership to support State efforts to increase the use of clean energy to achieve environmental, energy and economic benefits.

To support State and local clean energy programs, EPA has issued three key documents:

1. "Guidance on State Implementation Plan Credits for Emission Reduction Measures from Electric-sector Energy Efficiency and Renewable Energy Measures," August 2004;
2. "A Toolkit for States: Using Supplemental Environmental Projects (SEPs) To Promote Energy Efficiency (EE) and Renewable Energy (RE)," January 2005; and
3. "Clean Energy-Environment Guide to Action: Policies, Best Practices and Action Steps for States," February 2006.

The above State and EPA programs and resources and the requirement for State Implementation Plan (SIP) revisions to meet the new 8-hour ozone standard and the fine particulate matter (PM 2.5) standard have created a "window of opportunity" for clean energy/air quality integration, partly through the inclusion of energy efficiency and renewable energy measures into SIPs.

Yet, to date, EPA only has approved one control measure under the August 2004 Guidance. States must submit ozone and PM2.5 SIPs in the next two years, which leaves very little time to accommodate the lengthy process required for incorporating energy efficiency and renewable energy measures into SIPs. The voluntary control measure, approved in an EPA Federal Register notice on May 12, 2005, involved the purchase of wind energy by a buying group led by Montgomery County, Maryland.

There are limited precedents under the August 2004 Guidance for States, Tribes and local governments to follow to pursue aggressive adoption of energy efficiency and renewable energy measures within their SIPs or Tribal Implementation Plans (TIPs). In light of the coming SIP deadlines, EPA should lead the way now to overcome real and perceived obstacles to including energy efficiency and renewable energy measure adoption and inclusion in SIPs and TIPs.

Obstacles result from several factors:

- Some States have indicated that they are unlikely to pursue energy efficiency and renewable energy measures as part of their SIPs to meet the ozone and particulate matter standards because they perceive that only an insignificant amount of SIP credit may be obtained or that EPA requirements (including inconsistent application of requirements across the regions) for documenting the benefits within the SIP will be too burdensome;

- EPA is currently working with the States, Tribal and local governments on incorporating energy efficiency and renewable energy measures into SIPs/TIPs but the effort is not sufficient to provide many State, Tribal and local governments with the necessary assurances that EPA will likely approve their proposals for inclusion of energy efficiency and renewable energy measures into SIPs when they are submitted to the Agency;

- Some States, Tribal and local governments do not realize the extent of the opportunities they have for incorporating energy efficiency and renewable energy measures into SIPs/TIPs, and do not realize they can work with EPA Headquarters and Regional Offices on proposals during early SIP planning discussions;

- Incorporation of energy efficiency and renewable energy measures into SIPs/TIPs raises significant national policy issues which require time to resolve. For example, in some locations, due to the nature of the electric grid, it can be challenging to determine how the emissions benefits will occur in locations that are relevant to the non-attainment area in question. Some States are unclear of how to interpret EPA guidance on determining where net emissions reductions need to occur for clean energy measures with respect to a nonattainment area in order for that area to be able to take credit for that measure. There are also unrealized opportunities for regional cooperation to credit the dispersed emissions reductions. Some emission reductions estimated to occur may not be creditable for one non-attainment area, but may be creditable for another non-attainment area in another State;

- Certain States and regional planning organizations are actively considering control measures involving energy efficiency and renewable energy but are concerned that they may be impeded by unforeseen interpretations of the Clean Air Act, EPA regulations and guidance by EPA Regional Offices;

- The relationship between cap and trade programs and SIP credits for energy efficiency and renewable energy actions can be complex. Some State, Tribal and Regional air agencies may not realize that they need to retire allowances to receive SIP credit for NOx emission reductions if the state is subject to the Clean Air Interstate Rule (CAIR). Some state air agencies may not realize that they must create an energy efficiency and renewable energy set-aside under their

CAIR implementation rules to validate SIP credits for energy efficiency and renewable energy measures for the period from 2009 forward.;

- State, Tribal and local governments are in many cases unaware of existing resources on the timing and amount of DOE, EPA, and DOT funding of clean energy/air quality integration measures; and

- State, Tribal and local governments are facing budgetary constraints that may limit their ability to adopt innovative approaches.

PROBLEMS/CHALLENGES ADDRESSED: This recommendation addresses the following problems/challenges: (1) Meeting the NAAQS for ozone and PM2.5 and reducing regional haze; and (2) coordinating air quality and energy planning strategies.

NAS RECOMMENDATION ADDRESSED: This proposal is responsive to the following NAS recommendations: (1) expand national and multistate performance-oriented control standards to support local, state, and tribal efforts; and (2) transform the SIP process into a more dynamic and collaborative performance-oriented, multipollutant air quality management plan process.

SCENARIO:

Recommendations A, B, C, D and E – Scenario 1

Recommendation F -- Scenario 1, 2 or 3; From a legal standpoint, depending on what type of financing scheme is conceived per this recommendation, it may or may not be implementable under the existing Clean Air Act.

RECOMMENDED ACTIONS: EPA should expedite actions to overcome the above barriers to clean energy/air quality integration. All relevant EPA regional and headquarters offices should work with State, Tribal and local air planning organizations to:

A. Communicate with State air agencies, local planning organizations, Tribal governments and related non-profit organizations (ECOS, STAPPA/ALAPCO, NASEO) using different formats such as conference calls and webcasts to determine actual and perceived barriers to clean energy/air quality integration and to resolve policy issues on including energy efficiency and renewable energy measures in SIPs/TIPs;

B. Serve as a facilitator and mediator to ensure a consistent approach encouraging use and incorporation of clean energy measures and to help resolve policy issues and encourage the inclusion of energy efficiency and renewable energy measures into SIPs/TIPs;

C. Engage with State, Tribal and local air planning organizations in early discussions regarding energy efficiency and renewable energy measures being considered for inclusion in SIP/TIP submittals to help resolve any issues of interpretation or other technical concerns, including the reconciliation of the anticipated locations of the clean energy measure emissions reductions with any SIP requirements contained in EPA guidance and rules specific to particular SIP submissions;

D. Provide outreach to EPA Regional officials, State officials and State, Tribal and local governments on the interface between the CAIR regulations and energy efficiency and renewable energy measures in SIPs/TIPs;

E. Define a sample of energy efficiency and renewable energy control measures currently under consideration by State, Tribal and local governments to meet the ozone and PM standards and anticipate and proactively work through the issues that will arise during the SIP/TIP review process. For example, the Control Measures Workgroup of the Technical Advisory Committee of the Metropolitan Washington Air Quality Committee would be one good candidate for such proactive review since this Workgroup already has developed a large group of potential energy efficiency and renewable energy measures;

F. Increase awareness among State, Tribal and local governments of existing funding solicitation opportunities made available by DOE, EPA, and DOT relating to clean energy/air quality, including likely eligibility, funding levels, and amount of awards. This includes making these governments aware of such information sources as the Clean Energy Environment State Partnership online funding guide provided by EPA. EPA should also make funding information available on the EPA Air Innovations web site and other high visibility EPA website locations. This suggestion was presented to EPA at the 2005 Air Innovations Conference and EPA implementation would help overcome a major information barrier.

G. Identify innovative financing strategies (e.g., State performance contracting laws) to assist State, Tribal and local governments in implementing clean energy/air quality integration measures. For example, EPA should make widely available information on the development of financing strategies, such as performance contracting and effective use of tax incentives provided in the Energy Policy Act of 2005, to spur cash-strapped municipalities to adopt energy efficiency and renewable energy measures.

IMPLEMENTATION: For Recommendations A, B, C and D, EPA should convene a standing group to meet on a regular basis. This group should discuss the interface between the CAIR regulations and energy efficiency and renewable energy measures, should be tasked with identifying actual and perceived barriers to clean energy/air integration and should develop recommendations for addressing such perceived barriers. The group should focus on facilitating the implementation of energy efficiency/renewable energy measures across the country and including such measures in SIPs/TIPs, including the CAIR set-aside issue. Membership on the group should include EPA headquarters and regional offices, DOE/NREL, STAPPA/ALAPCO, NASEO, ACEEE, Tribal governments, environmental advocacy groups, industry and others.

For Recommendations E, F and G, EPA should consult NASEO, DOT, DOE/NREL, ACEEE, States and others to obtain the information, consolidate it and then make it available on an EPA website dedicated to energy efficiency and renewable energy.

BENEFITS: Reducing demand for energy reduces emissions associated with energy production and combustion which benefits air quality. Renewable energy projects can help improve air quality today by offsetting fossil-fuel-fired generation, especially during peak demand.

SECTORS/CATEGORIES RECOMMENDATION APPLIES TO: energy sector and energy customers

TOOLS NEEDED: Recommendations C, D and E would require the creation of new web pages dedicated to energy efficiency and renewable energy issues. No other tools are necessary.

PRIORITY: High

RECOMMENDATION 7: TAKING CLIMATE CHANGE INTO ACCOUNT IN AIR QUALITY MANAGEMENT STRATEGIES.

BACKGROUND/EXPLANATION:

The NAS report sets forth the following discussion on climate change:

> "The earth's climate is warming. Although uncertainties remain, the general consensus among the scientific community is that this warming trend will continue or even accelerate in the coming decades. The AQM system will need to ensure that pollution reduction strategies remain effective as the climate changes, because some forms of air pollution, such as ground-level ozone, might be exacerbated. In addition, emissions that contribute to air pollution and climate change are fostered by similar anthropogenic activities, that is, fossil fuel burning. Multipollutant approaches that include reducing emissions contributing to climate warming as well as air pollution may prove to be desirable."
>
> *Air Quality Management in the United States*, National Research Council (January 2004) at 16.

In addition, during the past several years many cities and States have promoted actions to reduce greenhouse gases. For instance, according to EPA, forty-one States and Puerto Rico have completed greenhouse gas inventories and twenty-eight States and Puerto Rico have completed, or are working on, action plans that identify options for reducing greenhouse gas emissions or enhancing greenhouse gas sequestration. Many cities and states are interested in integrating air quality planning with their climate change programs.

In terms of specific actions undertaken by States to reduce greenhouse gases, California has established greenhouse gas standards for passenger vehicles beginning with the 2009 model year, a move several northeast and west coast States have also adopted. In December 2005 seven northeast States (NY, NJ, CT, ME, NH, VT and DE) formally signed a Memorandum of Agreement to participate in the Regional Greenhouse Gas Initiative (RRGI) which aims to reduce greenhouse gas emissions from the electric generating sector using a cap and trade program. Maryland is also expected to participate in RGGI. California, Oregon and Washington are currently considering similar greenhouse gas control initiatives.

PROBLEMS/CHALLENGES ADDRESSED: This recommendation addresses the following problems/challenges: (1) maintaining AQM efficiency in the face of changing climate; (2) considering the effects of climate change in air quality decision making; and (3) coordinating air quality and urban planning strategies.

NAS RECOMMENDATION ADDRESSED: This recommendation addresses the following NAS recommendations: transform the SIP process into a more dynamic and collaborative performance-oriented, multipollutant air quality management plan process.

SCENARIO: 1

RECOMMENDED ACTIONS:

A. EPA should continue to pursue Recommendation 4.3 from the Phase 1 AQM Report to EPA: "4.3 Greenhouse Gas Co-Benefits and Disbenefits – EPA should assist States, and localities, in quantifying the potential greenhouse gas co-benefits and disbenefits of emissions reduction measures primarily designed to address ozone, PM2.5, regional haze and air toxics. In evaluating control measures, EPA should assist States and localities in quantifying potential greenhouse gas emissions increases and decreases. Many States and localities have adopted policies to assess and/or reduce greenhouse gas emissions. Under this recommendation, where requested, EPA should support a State's or localities efforts to determine how pollution reduction alternatives might also impact greenhouse gas emissions."

B. EPA should continue to undertake a comprehensive assessment of the implications climate change will have on future air quality objectives and include other Federal agencies and climate change expert scientists in that endeavor. The assessment should include estimation of the potential increases in the average and high temperatures during ozone season and the impacts of such increases on ozone formation. The assessment should estimate the air quality impact of secondary effects of temperature increases, such as wildfires, heat island effect, increased electric use, decreased hydroelectric generation and others. The assessment should include an estimation of any additional costs and savings associated with mitigation strategies to address impacts of climate change or temperature increases associated with secondary effects such as wildfires, heat island effect, increased electric use, and decreased hydroelectric generation.

C. EPA should continue its efforts to assist states in the development of annual greenhouse gas emission inventories. The Emission Inventory Improvement Program quantification guidance should be finalized and made available to states to promote comparability between state inventories. These enhanced inventories should be reflected in the assessment conducted under Recommendation B and enable states to better evaluate the air quality benefits associated with various control strategies. Coordination with greenhouse gas emissions inventories collected by other governmental entities, such as DOE, should be pursued to avoid duplication of efforts and to ensure integrity of the data. EPA, at the request of Tribes or State or local governments, should also provide additional technical assistance to States so they may effectively evaluate greenhouse gas reduction strategies in conjunction with the development of their air quality management plans.

IMPLEMENTATION: Per recommendations A and C, EPA should work with States, local agencies and tribes to provide the necessary technical assistance in regard to assessing greenhouse gas emission co-benefits/ disbenefits and associated air pollution reduction strategies as well as provide States, local agencies and tribes with the improved emission inventory information called for in recommendation C.

For recommendation B, EPA should conduct the comprehensive assessment on the air quality implications associated with climate change in a manner which utilizes the best information available and provide for stakeholder input.

BENEFITS: These three initiatives will provide additional and essential information to States, local agencies and tribes to use in any air quality and climate change program assessment or development they may be pursuing. Recommendation C will provide essential guidance on potential adjustments to be considered in the air quality planning process as a result of climate change.

SECTORS/CATEGORIES RECOMMENTATION APPLIES TO: mobile, stationary and area

TOOLS NEEDED: Currently available technical assessment tools should be sufficient to support all three recommendations.

PRIORITY: High

June 27-28, 2006 AQM Subcommittee Meeting
Atlanta, GA

Team 2 Table of Contents

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Tools Matrix

Sources or Sectors (not in priority order)	Recommended Tool Type	Specific Tool Options	Pollutant Targeted
(1) Fleet turnover & diesel retrofits	A. Financial tools and financial demand-side strategies B. Emissions Trading C. Information programs, reward programs and non-financial demand-side strategies D. Planning tools E. Retrofit strategies F. Enforcement enhancements I. Emission limits	A. Tax strategies, loans, equity strategies, and targeted rebates are financing strategies that may encourage fleet turnover (e.g., TERP, DERA, Moyer). B. Emissions trading may offer an appropriate private sector source of financing to accelerate turnover. Approaches that might work best for fleet turnover purposes include inter-sector trading strategies as well as fleet averaging programs. C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Labeling can be used to inform the general public of the choices they are making and to promote the use of new and innovative technologies and resources. Performance benchmarking can be used to highlight the positive characteristics of new and innovative technologies through comparison of these technologies against standard market practices and/or the continued use of existing products. Surveys can be used to gauge the effectiveness of the programs and to inform federal, state, tribal and local entities of program results and market changes. Frequent flyer-type programs can be used to provide incentives for entities that make frequent purchases by offering discounts, rebates, credits or other offerings to promote repeated use of the product(s) being promoted. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and influence decisions. D. Modeling to estimate the emission reduction benefits of fleet turnover and retrofit is recommended. An inventory of the number of diesel engines that could benefit from retrofit is recommended. E. Retrofit strategies include converting existing engines to an alternative fuel, engine recalibration, adding additional emission controls, replacement with a new, cleaner engine, and anti-idling and other changes in operating strategies that reduce emissions. F. Use SEP funding to encourage fleet turnover and retrofits. Use remote sensing to measure reductions. I. Require mandatory diesel retrofit. Require scrapage programs. Use green contract conditions in government contracts. Use state and federal leadership programs.	PM, NOx, VOCs, CO
(2) Land use & transportation planning (including road exposures)	A. Financial tools and financial demand-side strategies C. Information programs, reward programs and non-financial demand-side strategies	A. Financial demand-side strategies like differential pricing and tax strategies can be used as an incentive. C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Labeling can be used to inform the general public of the choices they are making and to promote the use of new and innovative technologies and resources. Performance benchmarking can be used to highlight the positive characteristics of new and innovative technologies through comparison of these technologies against standard market practices and/or the continued use of existing products. Community "Green Action" lists can be utilized to provide access to tools and information that will help promote the use of more sustainable "Green Community" concepts, including on line tutorials in the use of modeling software, model codes and ordinances, sample plans, community involvement practices and funding opportunities. Surveys can be used to gauge effectiveness of the programs and to inform federal, state, tribal and local	PM, NOx, VOCs, CO

Sources or Sectors (not in priority order)	Recommended Tool Type	Specific Tool Options	Pollutant Targeted
		entities of program results and market changes. Frequent flyer-type programs can be used to provide incentives for entities that make frequent purchases by offering discounts, rebates, credits or other offerings to promote repeated use of the product(s) being promoted. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and Influence decisions.	
	D. Planning tools	D. Provide modeling software for scenario envisioning and to quantify emission reductions. Modeling to project VMT for transportation planning is recommended.	
	H. Targeted strategies	H. Non-measured VOC sources can be detected by thermal IR camera (e.g., floating roof storage tanks, VOC loading racks, pipeline operations, marine vessels and marine loading operations).	
(3) Ships and ports, airports, and rail systems	A. Financial tools and financial demand-side strategies	A. Tax strategies, loans, equity strategies, and targeted rebates are strategies that provide financial incentives to reduce emissions. FAA grants through the VALE program are available.	PM, NOx, VOCs, SO2, HAPs
	B. Emission trading	B. Emissions trading can work together with appropriate emissions performance standards to provide private sector financing and to accelerate engine turnover. Depending upon the overall compliance program, the emissions trading element could consist of one or some combination of a performance averaging program (e.g., by a terminal operator or among fleets), inter-sector trading, banking and a cap and trade program.	
	C. Information programs, reward programs and non-financial demand-side strategies	C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Performance benchmarking can be used to highlight the positive characteristics of new and innovative technologies through comparison of these technologies against standard market practices and/or the continued use of existing products. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and influence decisions.	
	D. Planning tools	D. Modeling to estimate emission reduction benefits of various strategies is recommended.	
	E. Retrofit strategies	E. Retrofit strategies include converting existing engines to an alternative fuel, engine recalibration, adding additional emission controls, replacement with a new, cleaner engine, and anti-idling and other changes in operating strategies that reduce emissions.	
	F. Enforcement enhancements	F.Use SEP funding to accelerate emission reductions through electrification.	
	H. Targeted strategies	H. Non-measured VOC sources can be detected by thermal IR camera (e.g., floating roof storage tanks, VOC loading racks, pipeline operations, marine vessels and marine loading operations).	
	I. Emission limits	I. Use green contract conditions when facilities are enlarged or rebuilt, or when leases are up. Emission limits would be effective for any source with discrete, measurable points of emissions.	
	J. Work practice standards	J. Imposing work practice restrictions on intermittent sources can be effective to address high ozone levels (like taxiing on one engine).	
(4) Rural Sources			
(a) Agriculture (including potential effect on PM formation and acid deposition)	A. Financial tools and financial demand-side strategies	A. Predicate approval of loans on agreement to implement best management practices (BMPs).	PM, VOCs, ammonia
	C. Information programs, reward programs and non-financial demand-side	C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Performance benchmarking can be used to highlight the positive characteristics of new and innovative	

Sources or Sectors (not in priority order)	Recommended Tool Type	Specific Tool Options	Pollutant Targeted
	strategies	technologies through comparison of these technologies against standard market practices and/or the continued use of existing products. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and influence decisions.	
	D. Planning tools	D. Permit streamlining replaces redundant and unnecessary requirements in favor of practically enforceable limits that can reduce administrative costs, reduce timing, and improve enforcement. Modeling to estimate emission reduction benefits of various strategies is recommended.	
	E. Retrofit strategies	E. Retrofit strategies include converting existing engines to an alternative fuel, engine recalibration, adding additional emission controls, replacement with a new, cleaner engine, and anti-idling and other changes in operating strategies that reduce emissions.	
	J. Work practice standards	J. Work practice standards (referred to as BMPs) are currently in use and effectively controlling emissions from many agricultural sources.	
(b) Dust	A. Financial tools and financial demand-side strategies	A. Predicate approval of loans on green clauses in development contracts.	PM
	C. Information programs, reward programs and non-financial demand-side strategies	C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and Influence decisions.	
	J. Work practice standards	J. Work practice standards are effective tools for dealing with "area" type sources such as dust.	
(5) Small Emitters (e.g., dry cleaners, bakeries, restaurants)	C. Information programs, reward programs, and non-financial demand-side strategies	C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Labeling can be used to inform the general public of the choices they are making and to promote the use of new and innovative technologies and resources. Performance benchmarking can be used to highlight the positive characteristics of new and innovative technologies through comparison of these technologies against standard market practices and/or the continued use of existing products. Community "Green Action" lists can be utilized to provide access to tools and information that will help promote the use of more sustainable "Green Community" concepts. Surveys can be used to gauge effectiveness of the programs and to inform federal, state, tribal and local entities of program results and market changes. Frequent flyer-type programs can be used to provide incentives for entities that make frequent purchases by offering discounts, rebates, credits or other offerings to promote repeated use of the product(s) being promoted. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and influence decisions.	PM, NOx, VOCs, HAPs
	D. Planning tools	D. Permit streamlining replaces redundant and unnecessary requirements in favor of practically enforceable limits that can reduce administrative costs, reduce timing, and improve enforcement. Assessing inventory and population density is recommended.	
	H. Targeted strategies	H. Non-measured VOC sources can be detected by thermal IR camera (e.g., floating roof storage tanks, VOC loading racks, pipeline operations, marine vessels and marine loading operations).	
	I. Emission limits	I. Emission limits would be effective for any source with discrete, measurable points of	

Sources or Sectors (not in priority order)	Recommended Tool Type	Specific Tool Options	Pollutant Targeted
		emissions. With very small sources, it may not be cost effective to conduct routine or continuous source sampling.	
	J. Work practice standards	J. Work practice standards would be an effective alternative to emission limits for most of these sources.	
(6) Consumer Products (e.g., VOC-containing consumer products)	A. Financial tools and financial demand-side strategies	A. Financial strategies such as targeted rebates have proven successful.	PM, NOx, VOCs, SO2, HAPs
	B. Emissions trading	B. One or more emissions trading tools may be effective in this area, including averaging and banking..	
	C. Information programs, reward programs, and non-financial demand-side strategies	C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Labeling can be used to inform the general public of the choices they are making and to promote the use of new and innovative technologies and resources. Performance benchmarking can be used to highlight the positive characteristics of new and innovative technologies through comparison of these technologies against standard market practices and/or the continued use of existing products. Community "Green Action" lists can be utilized to provide access to tools and information that will help promote the use of more sustainable "Green Community" concepts. Surveys can be used to gauge effectiveness of the programs and to inform federal, state, tribal and local entities of program results and market changes. Frequent flyer-type programs can be used to provide incentives for entities that make frequent purchases by offering discounts, rebates, credits or other offerings to promote repeated use of the product(s) being promoted. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and influence decisions.	
	I. Emission limits	I. Emission limits would be effective for any source with discrete, measurable points of emissions. With very small sources, it may not be cost effective to conduct routine or continuous source sampling.	
(7) Industrial, Commercial and Residential Boilers and Heaters, and Legacy Equipment and Sources	B. Emissions trading	B. Emissions trading tools such as plant-wide applicability limits may be effective.	PM, NOx, VOCs, SO2
	C. Information programs, reward programs, and non-financial demand-side strategies	C. Clearinghouses can disseminate information on technology and incentives to educate and promote the use of technologies that have a positive impact on air quality. Labeling can be used to inform the general public of the choices they are making and to promote the use of new and innovative technologies and resources. Performance benchmarking can be used to highlight the positive characteristics of new and innovative technologies through comparison of these technologies against standard market practices and/or the continued use of existing products. Surveys can be used to gauge effectiveness of the programs and to inform federal, state, tribal and local entities of program results and market changes. Web tools can be used to move product information. This information can be targeted to a specific audience or for general consumption to inform, promote, educate and influence decisions.	
	D. Planning tools	D. Permit streamlining replaces redundant and unnecessary requirements in favor of practically enforceable limits that can reduce administrative costs, reduce timing, and improve enforcement. Modeling to estimate emission reduction benefits of various strategies is recommended. Inventory assessment is recommended.	
	I. Emission limits	I. Emission limits can be an effective tool to address these types of sources.	
	J. Work practice standards	J. Work practice standards might be an effective alternative to emission limits for some of these sources.	

AQM – Team 2: Needs, Tools and Attributes

1. List of "Needs" or Problems:

A. Priority Emission Reduction Target Areas

(1) Vehicles and Engines:

(a) Issues related to vehicle and engine emissions:

i. Insufficient turnover of existing fleets
ii. Need to encouraging higher market penetration of clean engines and fuels
iii. Need for greater implementation of retrofits

(b) Issues related to vehicle and engine use (i.e., vehicle miles traveled (VMT)):

i. lack of land use planning to reduce VMT
ii. lack of transportation planning to reduce VMT

(2) Special Under-Managed Problem Areas:

(a) ports and goods movement (including some related on-road engines, e.g., trucks); and
(b) airports
(c) other federally preempted sources (e.g., railroads, ships, etc.)
(d) agricultural emissions (including both their potential effect on PM formation and on acid deposition; includes, e.g., ammonia, dust from tillage, land clearing burning, etc.)
(e) dust emissions

(3) Small Emitters (e.g., dry cleaners, bakeries, restaurants, etc.)

(4) Consumer Products (e.g., VOC-containing consumer products)

(5) Industrial Boilers and Other Under-Regulated Stationary Sources

B. Problems and Needs Related to Measurements (of Problem or Actions Taken) and Performance Tracking

(1) Baseline Air Quality Data

(a) Current Disincentives - Current program discourages data development and other efforts to update the technical underpinning of attainment

SIPs. Currently, areas are penalized for discovering that their problem is worse than previously understood.

(b) Need for More Refined Data – we need more information regarding speciation of fine particulates if we are to identify the most appropriate sources to target for controls.

(c) Inventory Gaps – we have not yet adequately estimated emissions from many source categories, including:
- marine emissions
- locomotive emissions
- off-road diesel emissions

(d) Insufficient ambient air quality monitoring networks- lack of ambient data

(2) Hazardous Air Pollutants

(a) limited or non-existent monitoring data;
(b) need better risk assessment methodology that incorporates both scientific and traditional knowledge;
(c) lack of understanding regarding levels of significance
(d) lack of ambient thresholds; and
(e) need more understanding of potential impact of hazardous air pollutants on sensitive populations

(3) Planning Challenges

(a) co-benefit evaluations – we lack the tools or metrics to account properly for co-benefits of various strategies; and
(b) difficulty of evaluating local impacts of trading programs.

C. Problems or Needs Related to Authority or Jurisdiction

(1) Preemption – states and tribes are preempted from regulating many source categories;

(2) Limitations – e.g., many states and tribes can't go beyond federal measures or can't regulate minor sources

(3) International and Border Emissions

(4) Authority and jurisdictional regulatory "patchwork" of state/local regulations versus national regulations

D. Other SIP Challenges

(1) SIP Credit – how should credit for non-traditional strategies be allocated, including:
- mobile source strategies (e.g., diesel reduction programs)
- voluntary/incentive programs

E. Resources – many state, tribal and local agencies lack sufficient resources

F. Other Needs

(1) Lack of incentives to prevent air quality problems (e.g., in attainment areas)

(2) Conservation, both user and supplier side, including:
- energy efficiency
- user side behavior/choices
- purchasing/consumption
- mass transit

2. List of Potential "Tools:"

A. Financial Tools and Financial Demand-Side Strategies

Tax strategies (e.g., deductions, credits, accelerated depreciation, etc.)
Loans
Equity strategies
Clean air investment funds
Emission fees
Fees in lieu of offsets
Targeted rebates
Differential pricing

B. Emissions Trading Tools

Cap and trade
Open market strategies
Bubbles (e.g., by category of equipment, facility, industry, port or airport)
Plant-wide applicability limits
Mobile to stationary trading
Interpollutant trading
Risk-based trading
Reactivity-based trading

C. Information Programs, Reward Programs and Non-Financial Demand-Side Strategies

Clearinghouses for Technology, Regulations, Incentives

Labeling (e.g., star programs, nutrition label model)
Performance Benchmarking
Community "green" action lists
Surveys (e.g., impacts of personal choices)
Frequent flyer-type programs (e.g., points for personal clean air actions)
Web tools (e.g., info availability, personal clean air web account)

D. Planning Tools

Permit streamlining
Model local ordinances and guidance
Quantification models to project impacts of land use choices
Federal agency ombudsman for assisting local governments to identify available funds, good land use models, etc.
Memoranda of understanding
Remote sensing
Monitoring tools for dealing with inventory uncertainties

E. Retrofit Strategies (other than financial incentives, which are listed separately above)

Useful life limits on equipment
Retrofit requirements (Super RACT)
Minimum technology standards based on pollutant focus
Fuel type and usage
Operational protocol
Compliance flexibility
Direct regulations requiring retrofits

F. Enforcement Enhancements

Incentives for self-certification
Source specific emission limit agreements
Privatization Strategies

G. Targeted Strategies

Sensitive zones
Sensitive receptors
Time of day restrictions
Seasonal restrictions

H. Emission Limits

3. Attributes – for evaluating and comparing tools:

DIRECT:

A. Environmental benefits and dis-benefits (e.g., emission reductions, air quality benefits, public health benefits, cultural benefits, ecological benefits, aesthetic benefits), including a statement of which "need" is being addressed

B. Economic impacts (e.g., cost and cost-effectiveness)

C. Time (e.g., lead time, duration in years, continuity of benefit during day and week)

D. Ease of monitoring and accountability

AUTHORITY, JURISDICTION AND MECHANISMS:

E. Jurisdictional attributes (e.g., do states and tribes have necessary authority, are there limits, who would implement – business, local, state, tribe, federal, international?)

F. Would the strategy require CAA amendment?

G. Replicability

INDIRECT:

H. Impact on personal choice and quality of life

I. Benefits and dis-benefits on energy efficiency and greenhouse gas emissions

Tool Descriptions

A. Financial Tools and Financial Demand-Side Strategies &

B. Emission Trading Tools

C. Information Programs, Reward Programs and Non-Financial Demand-Side Strategies

D. Planning Tools

E. Retrofit Strategies (other than financial incentives, which are listed separately above)

F. Enforcement Enhancements (includes Privatization Strategies)

G. Targeted Strategies

H. Emission Limits

I. Work Practice Standards

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Brief Description of Tool:
For this application Financial tools and Emissions Trading tools are approaches which use either an economic incentive or a market-based strategy to encourage people to reduce emissions of air pollutants in the most efficient manner.

Applicability:

· Financial tools and Emissions Trading tools have been used for years with varying degrees of success. This paper lists some of the tools currently considered viable with references, where appropriate, to further information about them as many have been the subjects of lengthy reports.

· Financial tools can be used with and without an underlying regulatory mandate to spur expenditures on emission reducing technologies and strategies.

Implementation Experience:

A. Financial Tools and Financial Demand-Side Strategies

- ***Tax strategies*** (e.g., deductions, credits, accelerated depreciation, etc.)- Taxes are an incentive to reduce emissions. Monies collected can be used to fund other reductions (see Clean Air Investment Funds).

- ***Loans***- *Region 6*

- ***Equity strategies***

- ***Clean air investment funds***- A CAIF is a State-run mechanism to assist sources that face high control costs. It can be incorporated into Federal or State implementation plans for meeting the ozone and PM standards. The principal purpose is cost relief. A CAIF can serve as a way to lower the cost of compliance for sources by allowing them to pay an annual amount per ton of emissions in lieu of installing control equipment. The fund can also serve as a vehicle to attract investment in program development and technology innovation to improve long-term air quality management. The central purpose that ties these two uses together is to provide States and localities an additional tool for seeking out and securing less costly emission reductions. (*EIP, Section 9)*

- ***Emission fees***- *EIP Section 8*

- ***Fees in lieu of offsets*** (Bob Wyman providing something here)

- ***Targeted rebates***- These have been used in many places and for many different purposes. The replacement of lawnmowers and gas cans with newer, lower emitting models is a popular strategy.

- ***Differential pricing***- "The term 'transportation pricing programs' encompasses a variety of different programs that have a common element: *they attempt to incorporate the costs of transportation decisions into a price that a consumer sees and pays directly." (emphasis in the original-- EPA's 9/97 guidance, "Opportunities to Improve Air Quality Through Transportation Pricing Projects*" *)*

B. Emissions Trading Tools—*In general, see EIP*

- ***Cap and trade***- *EIP Section 6&7 "Cap and trade is a policy approach to controlling large amounts of emissions from a group of sources at costs that are lower than if sources were regulated individually. The approach first sets an overall cap, or maximum amount of emissions per compliance period, that will achieve the desired environmental effects. Authorizations to emit in the form of emission allowances are then allocated to affected sources, and the total number of allowances cannot exceed the cap."*

  "Individual control requirements are not specified for sources. The only requirements are that sources completely and accurately measure and report all emissions and then turn in the same number of allowances as emissions at the end of the compliance period." (source, EPA's Clean Air Markets Division)

- ***Open market strategies***- *EIP Section 6&7, Open Market Trading Guidance.* "Discrete emission reduction (DER) means an emission reduction generated over a discrete period of time, and measured in weight (e.g., tons)."

- ***Bubbles*** *(e.g., by category of equipment, facility, industry, port or airport*)- *EPA's 12/86 Emissions Trading Policy Statement, 51 FR 43814 A system under which existing emissions sources can propose alternate means to comply with a set of emissions limitations; under the bubble concept, sources can control more than required at one emission point where control costs are relatively low in return for a comparable relaxation of controls at a second emission point where costs are higher.(from EPA's Terminology Reference System)*

- ***Plant-wide applicability limits*** The PAL regulations are at 40 CFR 52.21 (aa) (for delegated PSD programs); 40 CFR 51.166 (w) (for SIP approved PSD programs); and 40 CFR 51.165(f) (for non - attainment areas). The provisions are essentially the same in all 3 rules. The preamble discussion for the PAL rules (which would have a generic description) begins at page 80206 (FR, Vol.67 #251, Dec.31,2002).

We also conducted a pilot study of PALs at 6 facilities. That study is discussed in a supplemental analysis for the NSR reform regulations in Appendix A at :

http://epa.gov/nsr/documents/nsr-analysis.pdf

Here is an excerpt from the summary of the analysis:

The EPA expects that the adoption of PAL provisions will result in a net environmental benefit. Our experience to date is that the emissions caps found in PAL-type permits result in real emissions reductions, as well as other benefits. As part of an overall agency effort to promote more flexible air permits, the EPA has been working with sources, States, the public, and other affected parties to pioneer a number of flexible permits nationwide. We recently completed an evaluation of six of these flexible permits that have been in effect long enough for us to be able to examine their performance. This evaluation, entitled "Evaluation of the Implementation Experience with Innovative Air Permits" is included as Appendix A to this report.

- ***Mobile to stationary trading***- is covered in several sections of the EIP. Start with the general guidance on OMT programs in Chapter 7.5. Development of emission quantification protocols for mobile sources in OMT programs is Appendix 16.3. Appendix 16.4 has some examples of Voluntary mobile programs. Appendix 16.10 discusses conformity, which could be an issue with mobile sources. Also would want to look at 16.11 and 16.14.

- ***Interpollutant trading***- *see EIP Appendix 16.9*

- ***Risk-based trading***

- ***Reactivity-based trading***- *See EPA's proposed approval of Texas' "Highly Reactive VOC Emissions Cap and Trade Program for the Houston/Galveston/Brazoria Ozone Nonattainment Area" (70 FR 58138 (2005) (to be codified at 40 CFR 52))*

Outline for white paper on incentive grant programs to be issued by the Sub-Committee on Economic Incentives and Regulatory Innovations and Air Quality Management Sub-Committee as part of the Clean Air Act Advisory Committee

Economic Incentive Grant Programs: An effective method to reduce emissions from on-road and off-road diesel vehicles

I. Introduction

A. Overview of the challenges in reducing emissions from the Legacy Diesel Fleet

1. Acknowledge the work of the Clean Diesel and Retrofit Work Group
2. Outline the challenges posed in reducing emissions from the legacy diesel fleet as outlined in the draft report
3. Review of different types of mandates and incentives that are currently in use as introduction to state incentive grant programs to reduce diesel emissions

II. Analysis of State Economic Incentive Programs

A. Texas Emission Reduction Program ("TERP")

1. History of creation of TERP as a substitute to mandatory measures in DFW and Houston SIPS
2. Discussion of the passage of SB 5 by the Texas Legislature including:

    a. Diesel Grant Program
    b. Clean Vehicle Program
    c. Energy Efficiency Program

3. Failure of Funding of SB 5 and passage of HB 1365

    a. Discussion and outline of HB 1365

4. Analysis and discussion of TERP following HB 1365

a. Review of grant effectiveness
b. Analysis of impacts upon different diesel sectors
c. Analysis of SIP credit effectiveness

5. Review of most recent changes to TERP and review of program by ENVIRON

6. Recent projects of TERP for integration into 8-hour air quality plans

B. Carl Moyer Program

1. Follow outline of TERP analysis above

III. Overview of Federal incentive program: DERA

A. Follow outline of TERP analysis
B. Discussion of financing of state vs. federal program options
C. Discussion of potential SIP impacts across the US and integration into 8-hour SIP planning

IV. Conclusion

V. Appendices --- TERP and Carl Moyer analysis materials

"DRAFT" Information Programs, Reward Programs and Non-Financial Demand-Side Strategies
Michael Sheehan
February 27, 2006

Brief Description of Tool:

- Clearinghouses for Technology, Regulations, Incentives
- Labeling
- Performance Benchmarking
- Community "Green" Action Lists
- Surveys
- Frequent Flyer-type Programs
- Web Tools

Applicability:

- These tools can be used to disseminate and/or gather information on important air pollution initiatives and programs to and from other federal, state and local parties as well as the general public. They can be utilized to educate, promote and/or incentivize the use of technologies, products, and practices that have a positive impact on air quality.
- All of the tools listed above could be utilized to address emissions of any pollutant from any emissions category. As is the case with any program, greater results will be obtained from the largest source categories with the most readily obtainable reductions and the most immediately available pool of information to provide. As these categories reduce emissions, new categories and opportunities will arise. The use of these informational tools to gather data, inform the public and reward those that actively participate in the programs will need to continuously evolve to remain effective and to more accurately target newly emerging areas of concern.

Implementation Experience:

- **Clearinghouses for Technology, Regulations, Incentives -** EPA supports a number of Clearinghouses and maintains a list of these at: http://www.epa.gov/epahome/hotline.htm . Some of the more notable clearinghouses are:
    - Clearinghouse for Emission Inventories and Emission Factor's
        - http://www.epa.gov/ttn/chief
    - Pollution Prevention Information Clearinghouse
        - http://www.epa.gov/oppt/ppic/index.htm
    - Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate Clearinghouse
        - http://www.epa.gov/ttn/catc/rblc/htm/welcome.html
- **Labeling** - EPA and the Department of Energy support one of the more prominent labeling programs. The Energy Star program is helping individuals

protect the environment through the promotion of items that provide superior energy efficiency. Information on this program can be found at: http://www.energystar.gov/ . Another labeling program that EPA has experience with is the labeling of products containing ozone depleting substances. Information and guidance on this program can be found at: http://www.epa.gov/ozone/title6/labeling/labfact.html . Other programs have been initiated by state and local agencies. The South Coast Air Quality Management District has the "Clean Air Choice" car labeling program. This program is designed to help buyers easily identify Clean Air Choice vehicles. Information can be obtained at: www.cleanairchoices.org .

- **Performance Benchmarking -** Performance Benchmarking is used to highlight the characteristics of one or more entities in relation to others. This tool appears to be widely used by consulting groups to highlight, compare and promote the attributes of a targeted sector. Not a lot of information was available through web searches of this category, however, one example is:
    - NRDC's Benchmarking of Air Emission of the 100 largest power producers in the United States – 2002, available at: http://www.nrdc.org/air/pollution/benchmarking/default.asp
- **Community "Green" Action Lists -** EPA created a green communities program to help communities access the tools and information that would help them become more sustainable "Green Communities." Information on this program can be found at: http://www.epa.gov/greenkit/whoweare.htm
    - The Goals of the Green Communities Program are:
        - to promote innovative tools that encourage successful community-based environmental protection and sustainable community development.
        - to establish partnerships with other organizations and agencies to help build community capacity and knowledge in order to create more livable communities.
        - to provide technical assistance and training through the Assistance Kit, workshops, and the network of successful Green Communities throughout the country.
    - Other programs are:
        - Greenaction: http://greenaction.org
        - Harmony Foundation: http://www.harmonyfdn.ca/mission.html
        - Co-op America: http://www.coopamerica.org
- **Surveys -** A survey is a method of gathering information from a number of individuals (a "sample") in order to learn something about the larger population from which the sample has been drawn. Surveys can be conducted using different tools and may have a variety of purposes. EPA has experience in completing surveys and through its emissions inventory improvement program even has even documented how to conduct surveys for area source inventories. This documentation can be found at: http://www.epa.gov/ttn/chief/eiip/techreport/volume03/iii24.pdf
    - Pursuant to section 183(e) of the Clean Air Act, EPA conducted a comprehensive 4-year study of consumer and commercial products. A

major element of that study was an accounting of VOC emissions from the full range of consumer and commercial products subject to section 183(e). This included a survey of consumer product manufacturers. Information can be found at: http://www.epa.gov/ttn/atw/183e/gen/183epg.html

- The California Air Resources Board has also conduct consumer and commercial product surveys in support of initiatives to regulated consumer products and architectural and industrial maintenance coatings. CARB's homepage is: http://www.arb.ca.gov/homepage.htm

- **Frequent Flyer-Type Programs** – most information found under this category related to airlines or defaulted to financial incentives when linked to environmental programs.
- **Web Tools** - In the electronic age web tools have been and will continue to be a necessary part of all environmental initiatives. As noted under all of the tools above, web tools are well used by the environmental community.

New/Additional Implementation Options and Issues:

- As noted, EPA currently supports a number of tools for use by the environmental community. Given the number of information sources found it is difficult at this time to determine what if any new implementation options would be available at this time.
- One of the key issues is the ability of the prospective audience to find the right information given the numerous sources available as a result of a simple web search. In order to determine what sources have been most successful at achieving their stated air quality goals an effort should be made to assess existing programs to determine what can be learned for future initiative and what if any changes should be made. It should also be noted that electronic data sources are only as good as the resources and commitment behind them. These tools have been beneficial to the air quality management process and will continue to be in the future as long as they come with the commitments and resources necessary to maintain them.

Outline of Tool Attributes:

The tools highlighted in this paper are informational tools used by the environmental community. As such they do not necessarily result in measurable environmental benefits and disbenefits, nor do they have economic impacts or time constraints. They require resources for monitoring and maintainenance but I am not sure if anyone has ever assessed these tools for accountability purposes. These tools can be used by federal, state and local jurisdictions in the implementation of clean air programs and they would not require Clean Air Act amendments to be implemented. Based on the number of resources found during the information gathering for this process, these tools are easily replicable. If they achieve the desired affect, they will help to impact personal choice and could better the quality of life with continued air quality improvement. By changing personal habits through the use of these informational tools, there should be a

net improvement in energy efficiency which will begin to address emissions of greenhouse gases.

"Draft" Planning Tools
Michael Bradley
March 6, 2006

Brief Description of Tool:
For this application a "planning tool" is defined as a measure, process, regulation or ordinance which is designed to anticipate potential air quality problems or to mitigate an ongoing air quality problem.

Applicability:

- "Planning tools" have been used to address many different types of air quality issues including transportation sources, area sources, intermittent activities and metropolitan area wide concerns.
- An inherent attribute of planning tools is that they can be designed to address a specific anticipated air quality concern while taking into account the specific environmental, economic and political dynamics which affect the situation.
- The planning process has the ability to take into account recent public health impact information, respond to new information, take advantage of recent technological advancements and learn from other similar planning experiences.

Implementation Experience:
A limited number of recently developed air quality related planning "tools" are described below which illustrates the diversity of approaches which are being adopted: (additional examples are welcome)

- ***New York City Clean Construction Equipment Law***

In a preventive planning strategy, the New York City Council adopted legislation to limit particulate emissions from construction equipment and diesel generators (non-road equipment) used by or on behalf of city agencies in order to protect city residents' public health. The City Council passed Local Law 77, requiring diesel-powered nonroad vehicles owned or operated by the city or those used in public works contracts by private companies to employ best available technology(emission control retrofits) and to use fuel with a maximum sulfur content of 15 parts per million. New York City is one of the first major U.S. cities to protect public health by requiring cleaner diesel equipment in public works construction. The City Council passed the measure in response to the significant health risks posed by non-road vehicle pollution, which include decreased lung function, aggravated asthma, respiratory symptoms and premature death. In 2000, the city had over 26,000 asthma-related hospitalizations costing nearly $250 million.

- ***California Goods Movement***

Goods movement – by truck, boat, and plane – is now the dominant contributor to transportation emissions in California. Moreover, CARB estimates that current (2005) goods movement activities result in approximately 750 premature deaths per year. To address this problem, the California Environmental Protection Agency and

the Business, Transportation & Housing Agency are developing a Goods Movement Action Plan. The Phase 1 Action Plan, released in September 2005, highlighted the air pollution impacts of goods movement and the urgent need to mitigate localized health risks in affected communities. The Phase I Action plan established four specific goals for addressing this problem: reduce emissions to 2001 levels by 2010; continue reducing emissions until attainment of applicable standards is achieved; reduce diesel-related health risks 85% by 2020, and ensure sufficient localized risk reduction in each affected community.

- ***EPA Community Action for a Renewed Environment (CARE) Program***

U.S. EPA's Community Action for a Renewed Environment (CARE) program is a competitive grant initiative that offers an innovative way for communities to work at the local level to address the risks from multiple sources of toxics in their environment. Through CARE, various local organizations including non-profits, citizens, businesses, schools and federal, state, tribal, and local government agencies create collaborative partnerships that implement local solutions to reduce releases of and minimize exposure to toxic pollutants. The goals of CARE are to educate communities regarding their pollution risks, reduce exposure to toxics, and promote self-sustaining community-based partnerships to improve local environments.

- ***Massachusetts Bay Transit Authority Emissions Monitoring***

Since May 2004, the Massachusetts Bay Transit Authority (MBTA) has been using state-of-the-art remote sensing devices to measure exhaust from its fleet of nearly 1,000 buses, in an effort to rapidly identify high emitting buses. High emitting buses are immediately taken out of service and repaired, and often return to service within 24 hours. This preventive monitoring program is an innovative feature in the MBTA's work to ensure that bus operations throughout the Boston metropolitan area have minimal impact on air quality. Through this program, the MBTA has become the country's first metropolitan transit authority to develop an inspection and maintenance (I/M) program to reduce air pollution from its buses. The remote sensing inspection and maintenance program will become an integral part in the MBTA's efforts to reduce diesel bus emissions by 90 percent between 2004 and July 2007 by upgrading its fleet with new compressed natural gas and clean diesel buses.

- ***Portland Land-Use Planning***

Via land use planning and zoning requirements, Portland, Oregon continues to be a front-runner in controlling sprawl while promoting clean air. The city has pushed pedestrian and transit-oriented real estate development as a way to manage growth, reduce air pollution and vehicle miles traveled, and obtain maximum return on public investment in light rail. In the mid-1990's, Portland initiated a "2040 growth concept" to guide the region's transportation and land-use planning. The city has a long-established urban growth boundary and offers various programs to help developers build vibrant downtowns and centers and livable streets.

- ***California School Siting***

California has passed land use planning laws to limit school children's exposure to air toxics. For instance, in 2003, the legislature passed SB 352. SB 352 creates a new requirement that any school site located within 500 feet of a freeway or other busy traffic corridor be reviewed for potential health risks. The focus of this analysis is on potential acute, short-term exposure to criteria pollutants. While California law previously required schools to ensure that permitted facilities within 1/4 mile did not pose a public health risk, the new law further requires schools to ensure that non-permitted facilities also not pose a public health risk. Such sources include, but are not limited to, freeways, large agricultural operations, and rail yards. The law does not apply to existing schools, but the law is expected to have a large impact on future school siting decisions. The bill came in response to various California Air Resources Board studies showing that air pollution levels can be significantly higher within 500 feet of freeways or busy traffic corridors and then diminish rapidly. A downwind distance of 328 feet (100m) will reduce cancer risk by over 60 percent. If the physical downwind distance is increased to 984 feet (300m), the relative concentration is reduced over 80 percent.

New/Additional Implementation Options and Issues:

For planning tools the implementation options would be determined by the specific circumstances associated with the objectives being pursued by a specific planning tool. Implementation barriers will also vary depending on the specific planning tool being developed.

Outline of Tool Attributes:

These attributes will have to be assessed for each individual planning tool.

Permit Streamlining
Patty Strabbing
February 20, 2006

Brief Description of Tool:

Permit Streamlining is the crafting of permit conditions such that redundant and unnecessary requirements and constraints are avoided in favor of limits that ensure the necessary and required emissions performance, and the associated demonstration of compliance in a manner that is practically enforceable. Redundant and unnecessary limits can include:

- Overlapping emissions performance limits (and associated recordkeeping), where one limit is more stringent. A RACT limit that applies to a source with a BACT limit would be such an example. In such an instance, the less constraining provisions (i.e., RACT) can be eliminated while retaining the more stringent provisions (i.e., BACT) to demonstrate compliance with both requirements.
- Limits on individual units that can be combined into a single multi-unit limit on emissions.
- Limits on operational conditions (hours of operation, unit throughput) of sources that have practically enforceable emissions limits that make the operational limits unnecessary.
- Limits with various time intervals (hourly, daily, monthly, annual) when fewer intervals will address all substantive concerns.

Streamlining can also be used to pre-approve certain types of source changes in the context of both NSR and Title V, thereby eliminating delays and paperwork at a later time that will yield the same environmental outcome.

Applicability:

Streamlining can be applied in the creation of new source permits, the incorporation of old NSR permit conditions into Title V permits, and the renewal of Title V permits. The key benefit of permit streamlining is the elimination of administrative burdens on agency and source personnel where recordkeeping, reporting, and permit amendment processing have no discernable environmental benefits. The reduced burden in turn makes air compliance more efficient for all parties, it can free up agency staff for more valuable activities, and it allows source owners to make operational changes more quickly in instances where the permitting review yields no environmental benefits.

Implementation Experience:

Streamlining has been used to a limited extent at both the state and federal levels over the last ten years with good success. EPA approved streamlining of overlapping emissions limits, wherein one is more stringent than the other, in the context of a Title V white paper. PALs, XL permits and flexible permit initiatives have all included some degree of permit streamlining to avoid administrative burdens that have no discernable environmental benefits. Michigan is one example that has recently started a program to develop streamlined permits on a case by case basis.

New/Additional Implementation Options and Issues:

Streamlining of conditions, as a philosophy of regulation can be applied to any emissions regulations or rules, not just permitting. For example, NSPS, RACT, and MACT rules could all be created or revised to address and eliminate or streamline recordkeeping, reporting and emission limits that are unnecessarily constraining or burdensome.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits
When done carefully, permit streamlining should have no environmental disbenefit. The idea is to eliminate requirements that have no benefit. In some instances, streamlining may make it easier to reduce emissions further but the program should not carry with it a requirement that emissions be reduced further than otherwise expected.

b. Economic impacts
Very large economic benefits will occur: administrative costs for government and industry will be reduced, frivolous enforcement activities can be avoided, and process changes can be affected more quickly.

c. Time
Streamlining does require an upfront investment in the crafting of permit conditions but the return on that investment will exceed the time spent at the outset.

d. Ease of monitoring and accountability
Carefully crafted streamlined conditions will be easily monitored and reported. Streamlined conditions mean less monitoring, reporting and oversight of requirements that have no benefits. Agencies and source operators have found streamlined permits easier to enforce.

e. Jurisdictional attributes
Streamlining can be of greatest benefit to state and local agencies in terms of workload and paperwork,

f. Would tool/strategy require CAA amendment?
No.

g. Replicability
While most streamlining to date has been done on a case by case basis, there is significant commonality. Guidance could be developed that will provide replicablity.

h. Impacts on personal choice and quality of life
Positive impacts will occur for the agency personnel and the source owners. No impacts on community members are expected.

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
No direct effects, although streamlining can be an incentive to eliminate the use of incinerators where compliance can be achieved through pollution prevention.

AQM Strategy Paper on Retrofits

The primary focus of retrofits so far have been over the road heavy-duty trucks due to their long life and the multiple engine rebuilds these vehicles have during their useful life. These retrofits may be converting engines to an alternative fuel, putting additional controls on an existing engine or replacing the existing engine with a new, cleaner engine.[1]

Those efforts should continue and be expanded, where possible, using whatever funds are available at the Federal or State level.

- Other vehicles that might be considered for retrofit include:
- Airport vehicles (convert to cleaner fuels, retrofit, or replace with electric)
- Off road equipment (locomotives, construction equipment, marine vessels, forklifts, etc.)
- Stationary sources (back-up generators, agricultural irrigation pumps)

Below is a chart from the Carl Moyer program in CA on the tons of NOx and PM reduced and the NOx cost-effectiveness. While the absolute numbers would not apply to other states, the relative larger gains from certain sectors might be helpful in targeting certain sources.

NOx and PM_{10} Emission Reductions And Cost-Effectiveness (NOx)[a] (Years 1-4)			
Source Category/ Equipment Type	Total NOx Reduced (tons/year)	Total PM Reduced (tons/year)	NOx Weighted Average Cost-effectiveness
On-Road			
Line Haul	183	6.6	$4,500
Refuse Hauler	500	15.8	4,800
Transit Bus	503	32.5	2,300
School Bus	4	0.3	7,200
Other	143	5.7	4,400

[1] The Carl Moyer program funded about 4,950 cleaner engines. This includes over 2,080 alternative-fueled vehicles, especially transit buses and refuse trucks. The program has also replaced nearly 2,870 older diesel engines with new, cleaner diesel engines, primarily in marine vessels, off-road equipment and agricultural irrigation pumps.

Off-Road			
Agriculture	43	6.4	4,600
Construction	190	15.9	4,400
Other	62	6.1	4,400
Ag Pumps	1,910	92.2	2,500
Locomotives	44	5.0	2,600
Fork Lifts	162	0.0	3,600
Marine Vessels	907	48.9	1,800
Total NOx/PM	4651	235.4	

a. Based on projects funded or with grant commitments. Approximately $9 million of Year 4 remains to be committed.

Other Factors

The advent of low sulfur diesel fuel being available in 2006 will enable some of these retrofit technologies to function better in the exhaust stream.

There are number of issues related to diesel use and restrictions on use time, or location which also can serve to reduce emissions, but they are not addressed here in this retrofit paper.

Funding

If no source of Federal funding is available, these programs could be funded by the creative use of fees from exempting certain newer cars from the Inspection and Maintenance program in the state, as outlined in the document the Alliance forwarded to the committee (Gregg Cooke's financial incentives group).

Incentives for Self-Certification
Sharon Kneiss
January 20, 2006

Incentives for Self-Certification
Enforcement-related regulatory burdens such as reporting and inspection frequencies and penalty exposure should be further reduced for firms with superior compliance determination procedures.

Applicability:
Probably more applicable to major sources with complex emissions profiles than to smaller sources. However, it could be appropriate and beneficial for sources of any size.

Such a reform would encourage improved company compliance procedures, which is by far the best method of assuring compliance. It would also allow governments to use their scarce enforcement resources where they could provide the greatest environmental improvement.

Implementation Experience:
EPA's audit policy represents a highly successful and well established application of this approach to reducing both penalties and the number of routine inspections. EPA's Performance Track Program has taken a very few steps toward reducing reporting burdens, for covered sources only. See 69 Fed. Reg. 21737 (April 22, 2004).

New/Additional Implementation Options and Issues:

- Much more could be done to reduce routine reporting requirements for companies with superior compliance determination procedures.
- The government could accept the determination of qualified third party audit firms as proof of superior compliance procedures, analogous to the use of accounting firms to certify financial statements. That would relieve the government of the resource drain of company by company certification, and encourage the spread of improved compliance procedures.
- At present, violations detected by legally required monitoring are not eligible for the penalty reduction aspects of the audit policy. Reduction of such penalties could be allowed for companies with superior compliance determination procedures.
- The audit policy does not currently allow any reduction of the "economic benefit" aspect of penalties. Such a reduction could be allowed for companies with superior compliance determination procedures.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits
This tool would reduce emissions by improving compliance. (It would be inappropriate to require **additional** emissions reductions, as some have

suggested, before companies with superior compliance procedures could qualify for this relief.) This tool would also free enforcement resources for higher-priority uses, and encourage the development and spread of better compliance determination procedures.

b. Economic impacts
Beneficial. Firms would not adopt this approach unless they saw such benefits, and it would save government resources as well.

c. Time
Could be implemented relatively quickly

d. Ease of monitoring and accountability
No special problems.

e. Jurisdictional attributes
Could be implemented at any jurisdictional level. As always, a coordinated State-federal approach would be desirable.

f. Would tool/strategy require CAA amendment?
No.

g. Replicability
Highly replicable from jurisdiction to jurisdiction

h. Impacts on personal choice and quality of life
No adverse impacts.

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
None.

Source Specific Emission Limit Agreements
Sharon Kneiss
January 20, 2006

Source Specific Emission Limit Adjustments:

Sources should be allowed to apply to their permitting authority for adjustments in the applicable "package" of emissions limitations. The permitting authority could approve those adjustments upon finding that the new package would produce greater social benefits and at least equal environmental benefits when compared to compliance with the original set of limits.

Applicability:

Primarily to major sources of air pollution. Such sources generally have multiple emission limits, which were often set without considering particular circumstances. Often, adjustments in those limits based on site-specific factors can improve environmental results, reduce costs, and produce other social benefits.

Implementation Experience:

EPA's Project XL was based on a similar approach. Despite some successes, the program as a whole fell far short of the expected results. ***[Note to reviewers: Are there other jurisdictions where this has worked better? A counter-example would help a lot]***

New/Additional Implementation Options and Issues:

A new and more promising approach would correct the defects of Project XL. Two in particular stand out:

- The process for approving alternative approaches should be streamlined.
- The Project XL requirement that alternative approaches always produce greater direct environmental benefits than the original approach should be relaxed. Alternatives that (for example) achieve the same results at lesser cost should also be encouraged, since they will encourage future environmental improvement by reducing its cost.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits
   Since equal environmental benefits would be a minimum requirement, this approach would be environmentally beneficial.

b. Economic impacts
   Since sources themselves would apply for this relief, we can assume that granting it would result in cost savings.

c. Time
Any such approach would need to provide for timely processing and decision. This has been an issue in the past.

d. Ease of monitoring and accountability
Each new approach would have to provide for monitoring at least as accurate as the monitoring in the formerly applicable requirements. The frequency and type of monitoring may be adjust to focus on the highest priority emissions.

e. Jurisdictional attributes
Such relief would require EPA consent case by case. Alternatively, EPA could empower states to undertake such actions following established guidelines and criteria.

f. Would tool/strategy require CAA amendment?
This new approach would definitely benefit from express Clean Air Act authorization. However, the new sets of requirements could also workably be incorporated in consent decrees or enforcement agreements.

g. Replicability
Although this approach is inherently case by case, one successful example could reinforce another, potentially changing the regulatory framework for an industrial sector or process.

h. Impacts on personal choice and quality of life
None

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
Energy efficiency and carbon free alternative energy projects would be encouraged by this approach. Sources generally place a high priority on such projects, while EPA regulations as currently drafted often discourage them.

Privatization
Patty Strabbing
February 20, 2006

Brief Description of Tool:

Privatization is the outsourcing of certain air agency activities to private companies.

Applicability:

In theory, all of the air agency services and activities could be conducted by contractors. However, the need for oversight by a government employee, avoiding conflicts of interest and the setting of policies create a number of practical constraints. Privatization makes the most sense when used to address one-time, discrete assignments and instances where the work involves technical analysis or information gathering or management rather than decisions by an agency.

Implementation Experience:

There is a long history of EPA and state air agencies relying upon contractors to complete individual technical assignments, such as emission control technology surveys or economic impact analyses in support of rule development. For example, much of the technical work on the MACT standards was carried out by contractors under the direction of EPA staff. This has been a long standing, accepted practice. In addition, routine inspections and audits, and review of reports are some of the others kinds of activities that have been contracted out. An example of a routine inspection would be taking fuel samples at a terminal or gas station, conducting screening tests on site, and shipping any samples for further screening to the EPA lab. To a lesser extent, permitting services have been contracted. We are not aware of any formal assessment of the effectiveness and relative cost of contractors doing basic permitting activities. (*Can an AQM work group reviewer give us information on how well this has worked in practice?)*

New/Additional Implementation Options and Issues:

One option that has been considered from time to time is providing an option for a permit applicant to pay a supplemental fee for a contractor to expedite the permit application review. (*Can an AQM work group reviewer tell us if they have had experience with this and how well it worked?)* In some instances, the discussion of this alternative has led to a wholesale review and streamlining of permitting for all parties rather than requiring a payment and using contractors for only a few applications.

Outline of Tool Attributes:

a. Environmental benefits and disbenefits

   If contracting speeds up the implementation of air programs, one can assume that air emissions reductions could occur more quickly than they would have in the absence of contracted work. On the other hand, the use of contractors does not ensure benefits. If for some reason the contractor is not able to be as effective as government employees, completion of work could slow down and benefits lost.

b. Economic impacts

   We do not know if contracting is cheaper than completing the same work with government employees. If emissions sources must pay contractor fees directly, their costs may rise significantly.

c. Time

This approach could be implemented in a year's time.

d. Ease of monitoring and accountability
   Contracting places the appropriate decision makers in government, however it may be harder for the agencies to have a true sense of understanding of day to day activities as well as perhaps difficulty in ensuring the day to day effectiveness of the program. From that perspective, monitoring and accountability are more difficult.
e. Jurisdictional attributes
   No specific attributes have been identified. This could be done at any level. We know of no EPA prohibition on privatization of state and local air agency responsibilities.
f. Would tool/strategy require CAA amendment?
   No.
g. Replicability
   It should be easy to duplicate any practices unless there are state or local laws that preclude contracting. Budgeting for contractors will be a separate impediment to replication.
h. Impacts on personal choice and quality of life
   No direct effect. Could make the quality of life of agency personnel better or worse. Either way, their roles will shift to "managers".
i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
   None identified.

Targeted Strategies
Pam Giblin
February 22, 2006

Brief Description of Tool:

- What is the tool/strategy and how does it work to reduce emissions?

  Targeted measures reducing specific chemical compounds tied to air quality problems in urban or industrial airsheds. Using a growing body of ambient air quality data collected by aircraft as well as traditional fixed monitoring, discrete chemical compounds can be identifed as playing a unique role in persistent air quality problems (e.g., high monitored ozone) within an airshed or within a specific airshed segment. Such persisent air quality problems may not be responsive to across-the-board precursor reductions. If discrete chemical compounds are linked to controllable point sources, control measures can be tailored to reduce both their long-term (annual) and short-term (hourly) emissions. The long-term controls can take the form of a market-based structure such as an allowance cap-and-trade. Refined modeling can replicate the ozone-reducing effect of such measures, and can support substitution of targeted measures for across-the-board precursor reductions with a higher cost and lesser air quality benefit.

Applicability:

- What areas and/or sources and types of emissions the tool primarily addresses?

  A successful example of such measures addresses industrial point sources. However, other source categories might be targeted in future examples.

- What needs and problems does it address?

  The tool addresses the problem of ever-greater emissions reductions needed to meet air quality goals in light of more challenging air quality standards and attainment deadlines. Scientific studies of ozone formation, for example, suggest that not all precursor reductions are equal. Rather than focusing exclusively on an across-the-board percentage precursor reduction, to which a modeled ozone exceedance may not be responsive, targeted measures allow SIP planners to focus targeted strategies on persistent air quality problems. Such targeting can be on a specific type of air quality event across multiple monitors (e.g., "spike" ozone events) or on a monitor-by-monitor basis. Multiple strategies may be appropriate where the analysis shows different causes for different air quality problems within a single airshed.

Implementation Experience:

- Examples of how the tool/strategy may have been applied/implemented in particular jurisdictions, including results and any lessons learned

A suite of Highly-Reactive VOC Control Rules in the one-hour Houston/Galveston/Brazoria ozone attainment demonstration SIP have played a central role in substantial ozone reductions measured in the airshed, and show even greater benefits in preliminary modeling of 8-hour attainment.

New/Additional Implementation Options and Issues:

- Other applications or ways of implementing the tool/strategy that have the potential to achieve new/additional emission reductions from what has been achieved before or in other areas

  Ozone and fine particulate are, in part, atmospheric reaction products. Ongoing air quality studies continue to identify reactivity associated with chemical compounds emitted by all source categories that serve both as precursors or reactants and as catalysts or promoters of ozone or fine particulate formation in the atmosphere. The Houston HRVOC program focuses on industrial light olefin emissions (ethylene, propylene, butadiene, butenes). Further studies in Houston and other airsheds may yield similar families of compounds that can be controlled with a targeted strategy.

  For each new/additional application, outline the pros and cons and any barriers that may exist to implementation for that application

  Some key chemical compounds of concern are emitted by biogenic sources or other sources for which targeted reduction strategies are more difficult.

Outline of Tool Attributes:

For each tool/application, provide the estimated or assumed attributes for each of the following:

a. Environmental benefits and disbenefits
   Environmental goals are better advanced by measures that target and reduce the most persistent air quality problems.
b. Economic impacts
   Economic impact can be more effectively managed where an equal or greater air quality outcome is attained by substitution of better-targeted measures instead of greater across-the-board reductions
c. Time
   Implementation of targeted measures is comparable to incremental increases in overall emissions mandates
d. Ease of monitoring and accountability
   Compliance demonstration provisions are built into the measure such that equal or greater accountability is obtained than is achieved under a traditional across-the-board reduction approach
e. Jurisdictional attributes

State, federal and local jurisdictions must cooperate to achieve success. Depending on the nature of the affected source category, one of those jurisdictions will be vested with primary authority. Typically, EPA-approved state rules are the vehicle for targeted measures.

f. Would tool/strategy require CAA amendment?
No.

g. Replicability
Measures can be targeted to persistent air quality problems in any airshed. Greater or lesser success can be expected depending on the nature of the source and the existing regulatory tools to craft a reduction strategy.

h. Impacts on personal choice and quality of life
Strategies can be targeted to achieve the greatest balance of air quality, economic and quality of life outcomes.

i. Benefits and disbenefits on energy efficiency and greenhouse gas emissions
Targeted measures could be developed to address these resources. However, focus in this example is on ozone reductions in urban or industrial nonattainment areas.

~ Draft ~

Emission Limits Tool

Dan Johnson
January 27, 2006

Brief Description of Tool

Emission limits prescribe the maximum amount of an air pollutant a source or category of sources may emit, in terms of either mass or concentration. Emission limits are generally established in regulations, and must be achieved by a date specified in the regulation, or when the source is constructed unless a more stringent emission limit is required by an applicable BACT or LAER.

Applicability

Emission limits are best suited for discrete emissions sources, where compliance with the limits may be determined through source sampling. Conversely, regulations that apply to area sources – for example, dust from construction activities – typically prescribe operational practices that are presumed to limit emissions, but since the actual mass or concentration of emissions would be difficult to quantify, specifying emission limits would not be appropriate. Emission limits may be used to establish and require implementation of state-of-the-art emission controls, and, when used in conjunction with operating limits, restrict the impact of the source on air quality.

Implementation Experience

Emission limits have been used throughout the history of air quality management, with significant success. The tool is especially effective when used to address discrete air pollution sources with easy to measure emissions. Though often used in these applications, the emission limits tool is less effective at addressing emissions from many small sources, sources where emissions are hard to measure (for example, particulates from conveyor belts and fugitive emissions from leaking valves and seals), and for processes that may change frequently, such as chemical processing facilities where emission characteristics may change with each new product produced.

New/Additional Implementation Options and Issues

The emission limits tool has been used extensively for over 35 years. Few, if any, significant new implementation options are expected in the coming years.

Evaluation of Tool Attributes

A. Environmental benefits and dis-benefits

Emission limits result in either direct air quality improvements (when applied to existing sources) or limit the amount of air quality degradation from a source or source category (when applied to new sources).

B. Economic impacts
Setting emission limits is typically governed by rules and procedures that stipulate the manner in which economic impacts are to be considered. If applied uniformly to all emission sources, the governing rules would limit disproportionate economic impact between sources and sources categories.

C. Time
Once established, emission limits can be implemented over whatever timeframe is needed to balance air quality improvement needs with the economic burden of compliance.

D. Ease of monitoring and accountability
In general, the emission limit tool should not be used unless compliance can be determined through monitoring and/or accounting. Emission test methods can be easy and straightforward, or complex and costly. Alternative test methods (for example, measuring surrogate parameters to deduce emission rates) can be used in some applications to simplify monitoring.

E. Jurisdictional attributes
EPA may set emission limits to be applied nationwide, while state and local agencies may set emission limits that apply within their jurisdictions. Regional organizations have no authority to set emission limits, unless an inter-jurisdictional compact has been signed by leaders of the respective jurisdictions.

F. Would the tool/strategy require CAA amendment?
No

G. Replicability
Emission limits are easily replicated from one jurisdiction to the next.

H. Impact on personal choice and quality of life
Emission limits are not typically used in applications that would directly impact personal choice or quality of life.

I. Benefits and dis-benefits on energy efficiency and greenhouse emissions
Emission limits that are established using procedures that require consideration of energy efficiency and greenhouse gas emissions may result in benefits in either or both areas. If such procedures are not built into the process, an emission limit could result in energy and/or greenhouse gas dis-benefits.

Work Practice Standards

Dan Johnson
May 11, 2006

Brief Description of Tool

Work practice standards are performance- or operation-based measures that, when implemented, will reduce air pollutants.

Applicability

Work practice standards are typically used in lieu of emission limits when sources of emissions cannot be measured (i.e., there is no discrete source of emissions, such as a smokestack or outlet to an emission control device) or when there are so many emission sources that source sampling would be impractical.

Implementation Experience

Work practice standards can be an effective approach at reducing emissions. For example, cattle feedlots can be a very significant source of particulate emissions, especially in arid regions. There are no emission control devices that could be used to reduce these emissions, and it would be impractical to measure emissions from the feedlot using standard source sampling techniques. There are, however, a number of management practices that studies have shown are effective at reducing emissions from feedlots. For example, cross-fencing is used to restrict the animals to confined areas. The animal wastes in this confined area are sufficient to suppress dust emissions. In this example, installing and operating the feedlot using cross-fencing could be considered a work practice standard.

New/Additional Implementation Options and Issues

The work practice standard tool has been used extensively for many years. Few, if any, significant new implementation options are expected in the coming years.

Evaluation of Tool Attributes

A. Environmental benefits and dis-benefits
   Work practice standards result in either direct air quality improvements (when applied to existing sources) or limit the amount of air quality degradation from a source or source category (when applied to new sources).

B. Economic impacts
   The establishment of a work practice standard is typically governed by rules and procedures that stipulate the manner in which economic impacts are to be considered. If applied uniformly to all emission sources, the governing rules

would limit disproportionate economic impact between sources and sources categories.

C. Time
Once established, work practice standards can be implemented over whatever timeframe is needed to balance air quality improvement needs with the economic burden of compliance.

D. Ease of monitoring and accountability
Work practice standards should only be required in situations where the practice can be monitored and verified. Emissions will not be reduced unless the measures are implemented.

E. Jurisdictional attributes
EPA may establish work practice standards to be applied nationwide (for example, the dry cleaner MACT), while state and local agencies may establish work practice standards that apply within their jurisdictions. Regional organizations have no authority to establish work practice standards, unless an inter-jurisdictional compact has been signed by leaders of the respective jurisdictions. Work practice standards are established in some industries to address issues specific to the industry, often resulting in air quality benefits (for example, best management practices in agriculture and measures to improve energy efficiency).

F. Would the tool/strategy require CAA amendment?
No

G. Replicability
Most work practice standards are easily replicated from one jurisdiction to the next.

H. Impact on personal choice and quality of life
While some work practice standards may directly impact personal choice, others do not. For example, prohibiting the use of gasoline powered lawnmowers to certain days, or restricting their use to specific hours of a day limits personal choice, while requiring cross fencing at a feedlot has no impact on personal choice.

I. Benefits and dis-benefits on energy efficiency and greenhouse emissions
Work practice standards may be established specifically for energy efficiency and/or to limit greenhouse gas emissions, with air quality as a secondary benefit, or may be established specifically to reduce emissions, in which case the energy and greenhouse gas impacts should be evaluated to avoid dis-benefits.

AQM – Next Steps/Schedule… (June 22, 2006)

June 27-28 -- Subcommittee will meet (Atlanta, GA) to discuss key recommendations, AQM Challenges summary, and the integration of the recommendations for the final report.

July – Drafting team convenes to develop integrated approach to improving the AQM system and initiates work on report.

August 1-2 – Subcommittee meeting (Denver, CO) to discuss an integrated approach to improving the AQM system and draft report.

September 12 -- The Subcommittee will meet in advance of the CAAAC meeting (September 13-14 in Washington, DC). The Subcommittee will finalize the draft report language. The CAAAC will receive a Phase 1 update and short update on Phase 2 at its meeting.

October 17-18 – The Subcommittee will meet to agree on the final report.

November 15 – Subcommittee delivers report to CAAAC for review prior to November meeting.

December 6-7 –, The Subcommittee formally presents report to the CAAAC (Washington, DC).

December 30 – Comments from CAAAC will be accepted and appended to the final report.

January 17 – Final report delivered to EPA via CAAAC.