

# **Control Strategy Development and Analysis (Part 1)**

# **General Approach to Identifying Control Strategies**

Sharon Davis, NJDEP

prepared by Judy Rand and Sharon Davis, NJDEP

# SIP Requirements

- **Attainment Demonstration**
  - Moderate and above nonattainment areas
  - Control measures in the modeling must show attainment
- **Reasonably Available Control Measures (RACM)**
  - Moderate and above nonattainment areas
  - Do the control measures advance the attainment date by one year?
- **Reasonable Further Progress (RFP)**
  - Moderate and above nonattainment areas
  - Controls must meet RFP requirements (3% reduction per year)
- **Reasonably Available Control Technology (RACT)**
  - Moderate and above nonattainment areas and all Ozone Transport Region States

# Overview of CAA Ozone Planning & Control Requirements by Classification

		NSR offset ratio	Major source threshold	
<b>EXTREME</b> (20 years to attain)	TRAFFIC CONTROLS DURING CONGESTION	1.5 : 1 Extreme	10	
	CLEAN FUELS REQUIREMENT FOR BOILERS			
<b>SEVERE</b> (15/17 years to attain)	PENALTY FEE PROGRAM FOR MAJOR SOURCES	1.3 : 1 Severe	25	
	LOW VOC REFORMULATED GAS			
	VMT GROWTH OFFSET			
<b>SERIOUS</b> (9 years to attain)	VMT DEMONSTRATION (& TCMs IF NEEDED)	1.2 : 1 Serious	50	
	NSR REQUIREMENTS FOR EXISTING SOURCE MODS			
	ENHANCED I/M			CLEAN FUELS PROGRAM (IF APPLICABLE)
	MODELED DEMO OF ATTAINMENT			MILESTONE CONTINGENCY MEASURES FOR RFP
	18% RFP OVER 6 YEARS			ENHANCED MONITORING PLAN
	STAGE II GASOLINE VAPOR RECOVERY			
<b>MODERATE</b> (6 years to attain)	BASIC I/M	1.15 : 1 Moderate	100	
	15% RFP OVER 6 YEARS			CONTINGENCY MEASURES FOR FAILURE TO ATTAIN
	MAJOR SOURCE VOC/NO <sub>x</sub> RACT			ATTAINMENT DEMONSTRATION
	TRANSPORTATION CONFORMITY DEMONSTRATION			
<b>MARGINAL</b> (3 years to attain)	NEW SOURCE REVIEW PROGRAM	1.1 : 1 Marginal	100	
	BASELINE EMISSION INVENTORY (EI)			MAJOR SOURCE EMISSION STATEMENTS
	PERIODIC EMISSION INVENTORY UPDATES			

# Start Control Measure Strategy Work Early

- Rules take a **lot** of time from plan to adoption!!
- Control measure commitments must be in place **before** air emissions projection inventory is completed to be in the modeling attainment demonstration, RFP analysis, or redesignation request
  - Start looking for measures after each new NAAQS is issued
  - Never stop looking for measures if your state is already in nonattainment of a NAAQS
  - Moderate nonattainment areas must evaluate all potential control for the RACM demonstration

# Pollutant Evaluation

- Evaluate how far off from **attainment** of a NAAQS your area is or will be
- Do a rough calculation on how much of a criteria pollutant or precursor needs to be reduced to reach attainment, based on past modeling
- Do screening modeling to estimate
  - if NO<sub>x</sub> or VOC measures will be more effective for a certain area
  - if transport is the main issue or local emissions
  - the sources of monitor exceedances
  - how much of a criteria pollutant or precursor needs to be reduced to reach attainment

# Inventory Evaluation (1)

- Evaluate your inventory for the **largest sources** of pollutant emissions
- Evaluate actual **and projection** inventories, because there are existing controls in place with future effective dates and turn over benefits (fleet and equipment turnover)
- Rank inventories by largest emissions

# Inventory Evaluation (2)

- Also important to note
  - Look at the largest **benefit achievable**, which is not always the largest emissions. A large emission category may have no practical control for large reductions, but a small emission category may have the potential for large reductions.
  - Several past control measures were not reflected properly in the inventory (PFCs, HEDD). Inventories are often updated and improved after a detailed control measure analysis!



# Inventory Evaluation (3)

## SCC Code Challenges

- Inventories are by detailed SCC code, but Individual SCC codes must be grouped together to match potential control measure strategies at a higher level, for example
  - Boilers
  - Power plants
  - Emissions from bulk gasoline storage
  - Industrial surface coatings
  - Distillate oil consumption
  - Tier 3 SCC code instead of Tier 4
- SCC codes vary from state to state, and there are too many to choose from
- Industry does not always report SCC codes consistently or accurately

# Inventory Evaluation (4)

## **Fugitive Dust PM categories (e.g., paved roads, construction)**

- May be unadjusted in the NEI and/or regional inventory. NJDEP has adjusted fugitive dust down for control measure evaluation, SIP inventories, and modeling
- Monitoring does not support EPA's emission estimates for fugitive dust
- This is not a very feasible area for control regardless on a large scale, it is more of a localized issue

# Looking for New Control Measures (1)

- Evaluate state of **California, South Coast Air Quality Management (SCAQMD,)** and other CA district rules and attainment plans
  - They are leaders in air quality
  - They have larger staff and do more detailed emission inventory survey's
  - EPA often follows CA's lead, but slightly less stringent
  - CARB often follows SCAQMD lead, but slightly less stringent
  - The northeast region has adopted many CARB and CA individual district rules.

# California Air Basins and Air Districts



# Looking for New Control Measures (2)

- Evaluate **EPA** control measure evaluation reports. They have hired contractors to do control measure evaluations.
- Evaluate **other States** rules for most stringent (e.g., Texas, Oregon)
- Research new technology, internet searches
- Talk to stakeholders (meetings and workshops)
  - Get ideas from industry, equipment manufacturers, environmental groups, the public . . .

# Feasibility Evaluation (1)

After compiling a list of potential control measures consider and evaluate

- Legal Feasibility
  - Some mobile is only federal
  - State agency cannot enforce strictly residential
- Technological Feasibility
  - Does the technology exist?
  - Does it have a track record?
- Social Feasibility
  - Will people be accepting (e.g., ban on residential wood burning)

# Feasibility Evaluation (2)

- Estimated Emission Reduction
  - Proportion emission reductions from an existing rulemaking in another state by population, vehicle miles traveled (VMT), or fuel usage, depending on the measure
- Effective Date of the Benefits
  - What is the lead time for industry to comply to obtain emission reductions?
- Pollutant Co-Benefits
  - Other pollutants reduced
  - Economic savings (gasoline recovery, etc.)
  - Meeting other regional goals
  - Energy planning
  - Soil and groundwater effects

# Feasibility Evaluation (3)

- Economic Cost Effectiveness
  - Costs
    - Dollars per ton of pollutant reduced
    - Cost of compliance per facility
    - Total costs statewide
    - % small business
  - How does it compare to other measures already adopted?
  - Do the health benefits outweigh the costs?
  - Is it RACT, or beyond RACT?



# Feasibility Evaluation (4)

- Federal Rules or Standards
  - Is your rule more stringent than an existing rule or standard?
  - Is it a rule that does not exist at the Federal level?
- Anticipated Sources of Controversy
  - What are the anticipated sources of controversy, adversarial comments?
  - Is there a potential for lawsuit?
- RACM Requirement
  - Will it advance the attainment date by one year?

# Regional and Other Workgroups

- **Work with other states through multi-state workgroups to develop regional control strategies and model rules (MARAMA, OTC, MANE-VU, NACAA)**
  - Promotes uniformity of regulations, benefitting states and industry
    - Especially important for product manufacturing rules
  - Avoids duplicating efforts, more efficient
  - May help address transport

# Ozone Transport Commission (OTC)

## Regional Control Strategies

### NO<sub>x</sub> Sources:

#### **Model Rules**

1. Power Plants–Oil and Gas-fired Boilers\*
2. Power Plants–High Electric Demand Day (HEDD) Turbines\*
3. Power Plants–Stationary Engines
4. New Small Gas Heating Boilers
5. Non-Road Diesel Idling\*
6. Aftermarket Catalytic Converters

#### **Categories Under Review:**

7. Power Plants–Coal-fired Boilers
8. Distributed and Emergency Generators (Demand Response)
9. Industrial/Commercial/Institutional Boilers

### VOC Sources:

#### **Model Rules:**

1. Large VOC Stationary Storage Tanks\*
2. Autobody Refinishing
3. Consumer Products
4. Architectural/Industrial Coatings
5. Solvent Cleaning  
(Industrial/Commercial)
6. Paint Thinners (Consumer)

#### **Categories Under Review:**

7. Gasoline Station Vapor Recovery

**\*Existing NJ Rule Equivalent to Model Already Adopted**

**Any questions or comments?**