

Ozone Reduction Strategies

Short-Term Measures for Discussion & Consideration

RAQC Board Meeting | November 1, 2007



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Background

- **Governor's Directive to the RAQC**
 - o Propose measures to reduce ozone in the 2008 Ozone Season
 - o Propose a plan to the AQCC by September 2008 to achieve the current federal ozone standard
 - o Begin assessing the implications and needs for a potential stricter ozone standard
- **September 2008 planning process well underway**
 - o Photochemical modeling analysis
 - o Initial strategy identification
 - o Federal SIP requirements
 - o Stakeholder meetings



2008 Strategies

- RAQC Board directed staff to work with APCD to come up with a potential list of strategies for discussion and consideration
- RAQC and APCD staff, in consultation with NFRMPO staff, met several times to brainstorm and refine potential strategies
- Focus was on strategies that could be implemented and sufficiently effective for 2008 season
- Additional strategies beyond 2008 will be considered during stakeholder process over next several months



Configuration of Strategies

- **Current**
 - Current measures that have not been fully implemented that provide additional emission reductions in 2008
- **Voluntary**
 - New voluntary measures that can be implemented prior to 2008 Ozone Season
- **Regulatory**
 - New regulatory measures that can be implemented prior to start of 2008 Ozone Season
- **Legislative**
 - Measures that need legislative authority to be implemented prior to start of 2008 Ozone Season
- **Future**
 - New measures that can be addressed in 2008 and provide benefit as early 2009



Current Measures

- **HB1302-06 High-Emitter Pilot Program**
 - Identifies high-emitting vehicles on the road and requires emissions-related repairs
 - Revisions in Reg. 11 passed in October 2007; begin implementation in early 2008 and increase through 2008 Ozone Season
 - Estimated emission reductions, based on repair of at least 225 vehicles: 10 tpy HC, 64 tpy CO and 0.5 tpy NO_x



Current Measures

- **Vehicle Scrappage Program**
 - High-emitting vehicles that are beyond repair will be scrapped and vehicles owners offered a cash sum in its place
 - \$150,000 from a SEP for implementation in 2008; determine ongoing funding sources to implement and expand program
 - Estimated emission reductions, based on 100-150 vehicles scrapped: 6 tpy HC, 42 tpy CO and 0.3 tpy NO_x



Current Measures

- **Continued Vehicle Fleet Turnover**
 - Federal gasoline and diesel Tier 2 emission control programs continue to be phased in
 - Will achieve vehicle emission reductions as older vehicles are replaced by newer vehicles
 - Estimated emission reductions from 2007 to 2008: 5.8 tpd VOC and 9.6 tpd NO_x



Current Measures

- **Diesel Retrofit Program**
 - Ongoing program that utilizes emission reduction equipment to reduce tailpipe and crankcase emissions
 - \$3.4 million in 2007/08 for 600 oxidation catalysts, 400 crank-case filtration and 540 engine pre-heaters
 - Estimated emission reductions for 2007-2008 program: 591 tpy HC, 5,633 tpy CO and 27 tpy NO_x



Current Measures

- **Off-Road and Non-Road Engine Standards**
 - Federal engine standards will achieve emission reductions as older off- and non-road engines are replaced by newer equipment
 - Estimated emission reductions from 2007 to 2008: about 2.8 tpd NO_x and 2.6 tpd VOC



Current Measures

- **Use of E-85 in Flex-Fuel Vehicles**
 - Ongoing efforts, driven mainly by the Governor's Biofuels Coalition, to increase the market share and usage of E85 fuel for flex-fuel vehicles



Current Measures

- **Statewide Oil and Gas Regulations in Reg. 7**
 - Implementation of new thresholds in current Reg. 7 for condensate tanks and dehydration units
 - May 1, 2008 effective date
 - o Control uncontrolled emissions ≥ 20 tpy for condensate tanks and ≥ 15 tpy for dehydration units
 - Estimated emission reductions: about 20 tpy VOC reduction state-wide (outside ozone control area)



Current Measures

- **Reciprocating Internal Combustion Engine (RICE) Controls**
 - Implementation of new standards in current Reg. 7 for RICE and phase in of tighter standards 2007-2011 for new & relocated from out-of-state
 - Effective date for 100-500 HP Jan. 1, 2008 with phase in by Jan. 1, 2011; effective date for ≥ 500 HP July 1, 2007 with phase in by July 1, 2010
 - Strategy will achieve NO_x, CO and VOC emission reductions statewide



Current Measures

- **Voluntary Ozone Education and Awareness Campaign**
 - Ongoing information and education campaign to increase understanding of ozone issues and encourage sustainable behavior change
 - Seeking additional funding for 2008 and beyond
 - 1 tpd reduction in VOCs if full funding is provided



New Voluntary Measures

- **Voluntary Reduction in Reid Vapor Pressure (RVP) of Gasoline**
 - Suppliers voluntarily commit to reduce the volatility (RVP) of gasoline below 7.8 pounds per square inch (psi), below 8.8 psi for ethanol blends, during the critical summer months (June-August)
 - Estimated emission reduction: 3.5 tpd reduction in VOCs assuming a 0.5 psi reduction



New Voluntary Measures

- **Voluntary Reduction in RVP of Gasoline in North Front Range**
 - Suppliers provide same RVP gasoline in North Front Range as provided in metropolitan-Denver region
 - Estimated emission reduction: 0.8 TPD reduction in VOCs with 7.8 psi RVP



New Voluntary Measures

- **Retrofit, Replacement & New Installation of High-Bleed Valves to Low-Bleed and/or No-Bleed Valves for Oil & Gas Systems**
 - Receive voluntary commitments to install new and retrofit existing high-bleed valves to low- or no-bleed pneumatic actuated valves
 - This strategy achieves a co-benefit; it reduces VOCs and methane, a greenhouse gas



New Voluntary Measures

- **Green Completions for Oil and Gas Well Development**
 - Encourage installation of equipment to capture natural gas and VOCs through the completion of well-drilling activities
 - Benefit to be determined



Voluntary Measures

- **Residential Lawn Mower Trade-Out Program**
 - Implement large-scale residential lawn mower trade-out program to recycle gasoline-powered equipment and replace with newer, lower-polluting alternatives
 - At least \$100,000 in funding required to implement large-scale program; \$25,000 secured for Weld County program
 - Estimated emission reduction: 0.8 tpy VOC reduction based on 500 mowers recycled



Voluntary Measures

- **Municipal “Green” Landscaping Pilot Program**
 - Local government entities voluntarily utilize solar and/or electric equipment and/or services for the maintenance of parks and other public areas
 - May need funding incentives to encourage participation and maximize effectiveness
 - Benefit to be determined



New Regulatory Measure

- **Tighten Vehicle Inspection / Maintenance Program Cut Points**
 - Lower cut points for VOCs and NO_x to increase the number of high-emitting vehicles captured through the current Inspection/Maintenance program
 - Emission reductions: 0.23 tpd VOC, 3.5 tpd CO and 0.65 tpd NO_x (depending on timing of implementation)



Future Measures

- The following measures were considered, but deferred due to effective dates beyond 2008
- These and other measures will be considered as part of the stakeholder process
 - o Fuels standards (need EPA approval)
 - Implementation of Federal Reformulated Gasoline
 - Removal of 1.0 psi waiver for ethanol
 - Lower RVP gasoline
 - o Legislation to develop motor vehicle control fund
 - o Revisions to Regulation No. 7 regarding VOC sources, including expanding RACT requirements to the entire nonattainment area
 - o Additional regulatory requirements for Oil and Gas industry – part of comprehensive statewide effort
 - o Expand high-emitter program to North Front Range
 - o CA Clean Car standards – long-term strategy