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# MASTER CONTROL STRATEGY LIST

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## Category

### ID Control Strategy

## Area Sources

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### Advanced Technology Use/Research

- 406M Advanced Low-VOC Technologies  
*Use of the advanced low-VOC alternative technologies developed by the industry including: waterborne technologies, radiation-curing technologies, and high solids and powder coating technologies. The VOC-containing materials are used in a wide variety of industries which include: manufacturing and coating of metal, wood, plastic, and other products; printing operations such as lithography, flexography, screen printing, gravure and letterpress; cleaning operations at repair and maintenance facilities; and numerous industries where adhesives are used.*
- 313M Measure 02 - Cool cities approach to reduce heat build-up
- 312M Measure 01 - Air purifiers at strategic locations in metroplex

### Area Sources

- 37M Measure 05 - Preserve green space and replant cleared wooded areas
- 27M Measure 01 – Incentives for low NOX water heaters
- 41M Measure 09 – New water heater NOX emission standards
- 40M Measure 08 - More reflective glass, efficient buildings, tougher energy use standards, white roofs on new houses, native plants, and add more trees (low VOC emitting species), xeriscaping/buffalo grass for reduced water use and less frequent mowing.
- 38M Measure 06 – Refueling station sharing
- 485M RJ Reynolds-Tobaccoville-eliminate use of coal fired boilers during ozone season
- 36M Measure 04 - There should be 100% mitigation of trees taken during development of land
- 35M Measure 03 - Locking gas nozzles in the morning
- 34M Measure 02 - No charcoal barbecuing
- 33M Measure 15 - Use Buffalo Grass instead of Bermuda and St. Augustine grasses
- 32M Measure 14 - Address pollution created by indoor activities which are vented outdoors
- 31M Measure 13 – Market based trading programs
- 30M Measure 12 – Area source credits for energy conservation/efficiency
- 29M Measure 11 – Area source credits for commercial and residential combustion equipment
- 28M Measure 10 – NOX RACT type limits for small emitters
- 39M Measure 07 - Provide lower polluting alternatives for households and others selecting new combustion sources (electric vs. natural gas)

### Burning Ban

- 487M Mitigate impacts of fire Restriction to not allow burning on forecasted high ozone days. Encourage mulch clearing debris rather than burning it
- 490M Revise open burning regulations to prohibit residential burning of leaves & yard clippings Also restrict the use of air curtain destructors on air quality action days
- 489M Time shifting (point sources) performing tests of emergency generators early in morning
- 488M Stricter controls of illegal/unauthorized outdoor burning Focus on issues dealing w/ illegal burning, tires, plastics, roofing materials & hazardous substances

### DFW Control Strategies

- 463M Building Efficiency and Codes  
*Statewide adoption of the International Residential Code (IRC) and the International Energy Conservation Code (IECC) for residential, commercial, and industrial buildings was mandated by the 77th Texas Legislature under SB5. The resulting NOx reductions based on electricity and natural gas savings were calculated to be 0.72 tpd.*
- 456M Offset Printing
- 471M Local Energy Efficiency Policies
- 455M Commercial Bakeries
- 451M Underground Storage Tank (UST) Remediation

## Category

# Area Sources

### ID Control Strategy

- 450M Windshield Washer Fluid  
*Limit automotive windshield washer fluid to 23.5 weight-% VOC. Federal requirement was 35% weight-% VOC, so Texas could take credit for the difference between 23.5 and 35 weight-%. Therefore, Texas is taking VOC emission reduction credit for this difference. Texas has incorporated an 80% rule effectiveness for its windshield washer fluid rule.*
- 449M Appliance Replacement
- 457M Naphtha Dry Cleaners  
*The proposed measure lowers the exemption level based on Naphtha consumption from 3,500 gallons per year to 2,000 gallons per year.*

## Emissions from Combustion Processes

- 492M Industrial natural gas combustion Manipulate the combustion process using low-NOx burners

## Energy Efficiency / Recycling

- 506M Memphis Light, Gas & Water Energy Audits of residential buildings "Energy Doctor Program"
- 508M Encourage Companies to Buy Recycled/Energy Efficient Products
- 510M Reuseable Dining Material
- 505M Explore strategies to reduce transmission line losses
- 512M Improve Recycling Programs
- 499M Encourage Construction of Energy Efficient Buildings Retrofitting Of Public Buildings Additional advertisement and promotion to encourage citizens to prefer energy efficient building
- 513M Turn Off Lights/Computers
- 514M Purchase Energy Star Products
- 511M Solor Panels on Rooftop - Particularly in New Schools, Retail and Public Buildings.
- 504M Encourage residential swimming pools be covered when not in use
- 503M Reducing Energy Use Through Recycling, Composting, Use Of More Efficient Heating And A/C Units Current recycling program is still voluntary
- 502M Builders Beware Current building permit standards will be assessed to promote energy friendly designs
- 500M Require % Green Power Purchased for Public Facilities
- 498M LDNR energy fund for schools, hospitals & state buildings Available to all publicly funded institutions implementing energy conservation measures under a performance-based energy efficiency contract
- 497M Timed Lighting for Parking Lots, Advertising, and Building
- 496M LDNR HERO for individual homes Offers cash payment for residents who build new homes to high levels of energy efficiency or make energy improvements to existing homes
- 495M Energy star products Sales tax break - labels will help customers understand benefits
- 515M Installly Workplace Occupancy Sensors - Reduce Energy
- 509M Buy In Bulk - Less Packaging
- 501M Use green cleaning products Substitute cleaner "green" products for traditional cleaning products
- 507M Capture methane from landfills Implement program to produce this green power

## Fugitive Emission Reductions

- 545M SOLV2A-Adopt OTC Model Rule with additional product coverage and more stringent VOC limits(14.2% reduction beyond Federal Part 59 rule, for a total reduction of 21.0% from uncontrolled emissions)
- 525M Architectural +/-or Industrial Surface Coatings Controls adopt the federal rule for Architectural & Industrial Maintenance
- 538M SOLV1B-Adopt SCAQMD Phase III VOC limits in addition to OTC Model Rule
- 539M Other natural gas industry emissions reductions Initiate or improve leak detection & repair programs
- 540M SOLV3B-Adopt incentive programs in nonattainment areas to accelerate phase-in of compliant PFCs (27% reduction in 2009, 54% at full implementation in 2012)
- 541M SOLV7C-Require air pollution control device (90% control) for UST vent
- 542M SOLV4A-Extend the existing IL/IN/WI RACT regulations (55% reduction from uncontrolled, 24% reduction beyond Part 59 limits) to all counties

**Category****Area Sources**

<b>ID</b>	<b>Control Strategy</b>
536M	Control of VOC emissions from bread & snack food drying and commercial bakery operations, distilled spirit facilities, pharmaceutical products, explosives and propellant and reinforced plastic manufacturing, , vinegar generators, and flexographic and rotogravure printing
544M	SOLV4B-Adopt more stringent RACT regulations (89% reduction from uncontrolled) based on SCAQMD 1145
535M	SOLV1A-Adopt more stringent VOC limits (21% reduction beyond Federal Part 59 limits) for AIM coatings based on OTC Model Rule and Wisconsin NR433.17
546M	SOLV2B-Adopt CARB 2003 SIP requirements with additional products and more stringent VOC limits in addition to OTC Model Rule (25% reduction beyond Federal Part 59 rule)
547M	SOLV7A-Adopt CARB EVR Stage I requirements (98% control) in 8-hour nonattainment areas and adjacent counties
548M	SOLV7B-Adopt CARB EVR Stage II requirements (95% control) in 8-hour nonattainment areas and adjacent counties in addition to on-board vapor recovery
549M	SOLV3A-Adopt OTC Model Rule for portable fuel containers (18% reduction by 2009, 54% reduction at full implementation in 2015)
382M	Process Emission Reductions 1 <i>Refine the emission inventory and further control VOC emissions from miscellaneous chemical processes. Potential control methods include enhanced inspection and maintenance and other housekeeping work practices to reduce fugitive emissions from material transfer, storage, and processing.</i>
387M	Best Available Control Measures <i>Reduce PM10 emissions from all man-made fugitive dust sources. At the time, these measures were at least as stringent as control measures included in any other PM10 non-attainment plan or achieved in practice.</i>
543M	Stop at the click program Distribute stickers for gas pumps that encourage individuals to stop at the click
528M	Graphic arts controls Require the use of control devices and low vapor pressure VOC materials at certain print shops
523M	Off-road equipment fuel tank (OREFT) program
522M	Use Reflective Paint on Buildings to Reduce Energy Consumption
521M	Consumers & commercial products Reformulation of products like paints, cleaners, etc.
520M	Degreasing Controls
519M	SOLV8A-Adopt SCAQMD 1108.1 VOC content limit (50% reduction) for emulsified asphalt
518M	Wood furniture coating operations Require the use of reformulated product for the series of coating steps & application methods used in finishing wood products
537M	Coil, leather, large appliance, metal, furniture, aerospace, automotive, brake shoe, and can coatings. Paper, fabric, vinyl & other plastic parts coating. Paint, resin & adhesive manufacturing & adhesive application
527M	Auto body refinishing/coatings control Regulate VOC emissions from auto body refinishing through requirements to lower the VOC content of the products used, improve the application
529M	Volatile organic liquid (VOL) storage Require that fixed roof storage tanks install seals to prevent escape of VOC vapors
530M	Gas Can Exchange Event
531M	Restrict Painting on Ozone Action Days
376M	Coating and Solvent Emission Reductions 2 <i>This measure seeks additional VOC emission reductions from industrial coatings and solvent operations through a comprehensive review consisting of a comparison of VOC limits adopted by other air districts in California, survey of recent Best Available Control Technology (BACT) determinations, etc. Examples of future technical evaluation may include currently exempt clean-up materials, vanishing oils, aerospace handwipe cleaning operations, etc.</i>
532M	Use Non-VOC Parking Lot Sealers
533M	SOLV5B-Area sources - adopt RACT regulations (90% from uncontrolled), lower applicability thresholds, and extend geographic coverage to all counties
534M	SOLV6A-Adopt Chicago/Metro East cold cleaning regulations (66% reduction from uncontrolled) in all counties
526M	Glycol dehydrators May include requiring installation of condensers or other controls on select glycol dehydration units w/ potential to emit beyond a defined limit

**Innovative Control Approaches**

- 550M Energy Efficiency in PC Networks written into code.  
*Central Network System monitors and controls all systems on network to ensure maximum computer shutdown during non-use period.*

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- 407M Reactivity-Based Controls  
*Because different chemicals used in coatings and solvents exhibit different reactivity rates in forming ozone, reformulation based on lower reactive compounds needs to be evaluated and considered in future rulemakings in order to provide a viable compliance option. Further study would also be required to evaluate the reactivity of different compounds under various meteorological conditions.*
- 551M Emission Reduction Software Implementation  
*Implementation of emission reduction assessment tool for NOx reduction from petroleum refining and chemical industries.*

## Land Use Measures

- 135M Measure 08 - Trip reduction oriented development
- 553M Mixed-use development Encourage home occupations
- 134M Measure 07 - Cash incentives to foster jobs/housing balance
- 556M Provide More Protection for Trees
- 133M Measure 06 - Incentives for cities w/ good development practices
- 136M Measure 09 - Sustainable development
- 558M Tree ordinance Strengthen the current tree ordinance to require more large trees established in new subdivision developments
- 131M Measure 04 - No-build zones
- 130M Measure 03 - Allow two-story residential development
- 129M Measure 02 - Incentives to increase density around transit centers
- 127M Measure 01 - Auto restricted zones
- 554M Protect Natural Areas; Minimize Use of Motorized Vehicles; Pesticides
- 128M Measure 10 - Mixed use dense development
- 555M Shaded parking areas
- 557M Revitalization & infill Develop database on vacant, underutilized properties
- 132M Measure 05 - Land use/air quality guidelines

## MISC.

- 204M Measure 01 – Gasoline containers
- 179M Measure 07 - Studies for ammonia volatilization. Current SCR methods create other problems such as trading NOx problems for ammonia

## Point Sources

- 583M Chemical Coal Cleaning  
*Uses chemical processes to remove pyrites (inorganic sulfur compounds) and organic sulfur in coal*
- 574M Low-NOx Burners  
*Burners designed to produce lower NOx emissions – “staged” combustion*
- 576M Overfire Air  
*Form of “staged” combustion. Divert portion of the air from the windbox to OFA ports installed above the burners.*
- 577M Oxygen-enhanced combustion modification  
*Improve effectiveness of OFA operation by injecting O2 into fuel-rich flames. Operate more fuel-rich without the problems. Emerging technology.*
- 578M Physical Coal Cleaning  
*Uses physical processes to remove pyrites (inorganic sulfur compounds) in coal*
- 579M Rich Reagent Injection  
*SNCR system with reagent injection into a fuel rich zone of the OFA system. This variation of SNCR is still under demonstration*
- 580M Selective Catalytic Reduction (SCR)  
*Ammonia added upstream of catalytic reactor installed upstream of air preheater (conventional), downstream of a hot ESP (low dust), or downstream of the cold ESP (tail end).*
- 581M Selective Noncatalytic Reduction (SNCR)  
*Inject ammonia-based reagent into upper furnace (1700-2000 degrees F) to destroy NOx.*
- 582M Switch to Low Sulfur Coal  
*Uses low-sulfur western or other coals*
- 575M Magnesium enhanced lime system (MEL)\*  
*In the MEL process, slaked lime, containing calcium hydroxide [Ca(OH)2] and a portion of magnesium hydroxide [Mg(OH)2], is used to react with SO2.*

**Catergory**

# Area Sources

<b>ID</b>	<b>Control Strategy</b>
573M	Limestone forced oxidation system (LSFO)* <i>LSFO is a process based on wet limestone scrubbing which reduces scaling and eliminates need for landfilling of the waste product. Currently the preferred FGD technology worldwide.</i>
572M	Lime spray dryer system (LSD)*
571M	Fuel Reburn <i>Inject portion of the fuel into the furnace downstream of burner zone. Usually requires OFA to complete combustion</i>
560M	Hydrocarbonenhanced SNCR <i>Inject small amount of natural gas to create radicals that enhance SNCR effectiveness at 1700 to 2000 °F. Emerging technology.</i>
569M	Burner Modifications <i>Burner air and/or fuel modifications to improve air/fuel interaction</i>

### Ridesharing Measures

606M	Ban Open Burning On Ozone Alert Days (Orange or Above) Try to develop a policy with local governments within Cumberland County to ban open burning where it is currently allowed
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### Short-Term Control Measures

375M	Coating and Solvent Emission Reductions 1 <i>Further Emission Reductions from Architectural Coatings and Cleanup Solvents. This control measure proposes to achieve additional VOC emission reductions from architectural coating categories and thinning and clean-up solvents.</i>
380M	Miscellaneous Emission Reductions 5 - Catalyst-Surface Coating Technology Programs <i>Proposes to reduce ozone and CO emissions through a regional-scale use of ozone destroying catalyst coatings. Several field studies have been conducted to demonstrate the efficacy of this and preliminary results do indicate reductions in ozone concentrations when the catalyst is used. Staff is also reviewing the CARB's LEV II Program that contains an element to allow for VOC credits for the use of catalyst surface coating in mobile source applications.</i>
381M	Process Emission Reductions 2 <i>Emission Reductions from Restaurant Operations. Reduce PM emissions from charbroilers, which consist of three main components: a heating source, a high-temperature radiant surface, and a grill.</i>
388M	Miscellaneous Emission Reductions 1 <i>Emission Reductions from Wood-Burning Fireplaces and Wood Stoves (PM10) MSC-06. Reduce PM10 emissions from wood-burning fireplaces and wood stoves used in the Basin. The current PM10 emissions inventory for these units is about 5 tons per day. The measure proposes to further refine the emissions inventory, assess available emissions data and air quality impact for burning manufactured logs versus natural wood, consider control approaches (e.g., U.S. EPA certified wood stoves or fireplace inserts in new residential or public settings), develop incentive programs to encourage the replacement of old wood burning units, and strengthen public awareness and education programs.</i>
397M	Pesticide Emission Reduction <i>Explore approaches to further reduce volatile emissions from pesticides based on regional need.</i>
611M	Reduce (VOC) emissions from portable fuel containers

### Vehicle Use Limitations/Restrictions

665M	Agriculture Process Emission reductions May include urban area lawn & garden fertilizer application control programs limiting/restricting nitrogen fertilizer application on OADs
642M	Low VOC Striping Material Require use of reformulated striping material products
661M	Painting Restrict indoor & outdoor painting on Ozone action days

<b>Total</b>	<b>133</b>
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