

EMISSION CONTROL STRATEGY EVALUATION

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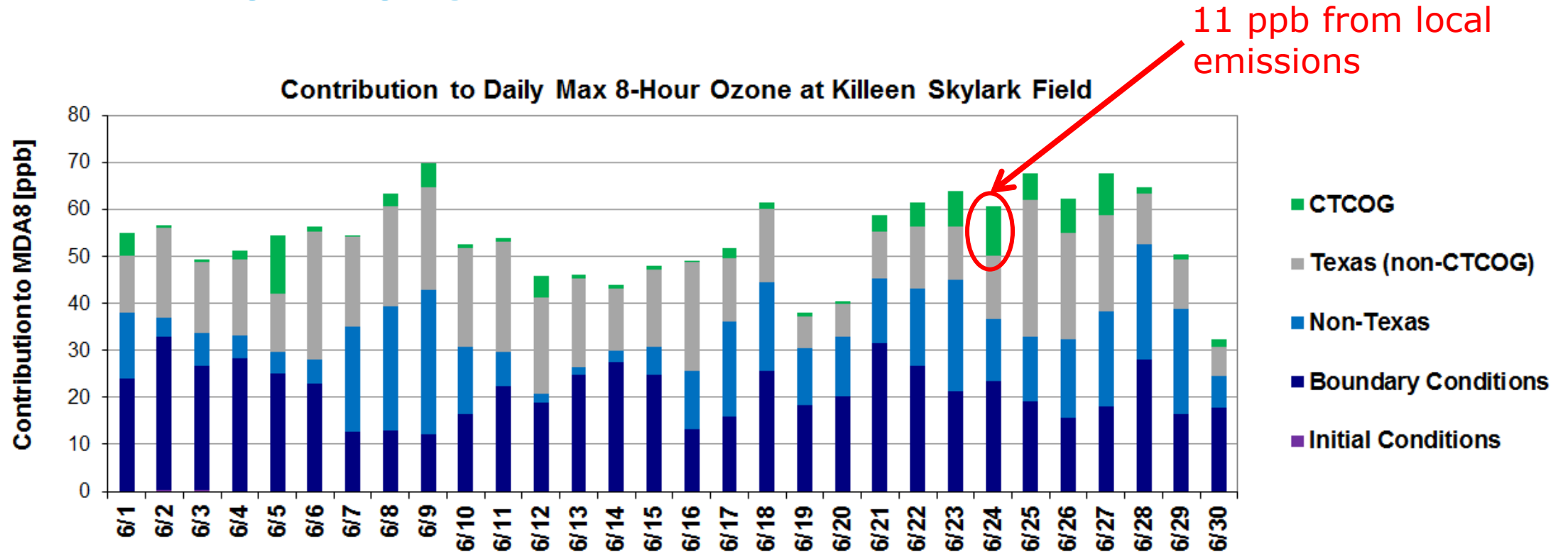
Ramboll Environ

January 31, 2016

PREPARED UNDER A GRANT FROM THE
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

This presentation was financed through grants from the State of Texas through the Texas Commission on Environmental Quality. The content, findings, opinions and conclusions are the work of the author(s) and do not necessarily represent findings, opinions or conclusions of the TCEQ.

LOCAL EMISSIONS CAN INFLUENCE OZONE AT KILLEEN AND TEMPLE MONITORS



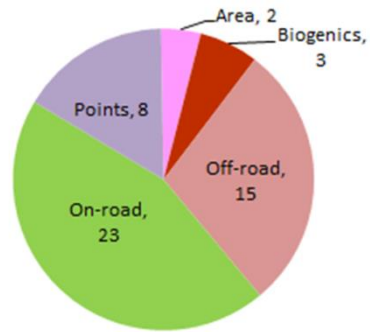
- KTF Area ozone mostly due to transport, but local emissions can make a substantial contribution
- Local emission reductions reduce size of green bar

CONTROL STRATEGY EVALUATION METHOD

- Local emission control measures that reduce ozone precursors Bell, Coryell, Hamilton, Milam, Mills, San Saba, and Lampasas Counties
- Ozone formation in the KTF Area is limited by the amount of available NOx
 - Abundant biogenics mean there is typically sufficient VOC to form ozone
 - Focused on NOx emissions reductions
- Reviewed air quality plans for other areas of Texas and rest of US
- Evaluated potential KTF Area emission reductions, feasibility, cost effectiveness
- Each of the control strategies is locally enforceable and meets State Implementation Plan criteria: quantifiable, enforceable, surplus, and permanent
- Developed ranked list of measures

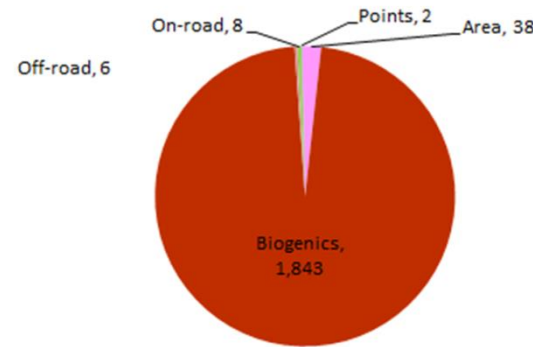
KTF AREA 2012 NOx EMISSION INVENTORY

KTF Area 2012 NOx Emissions (tpd)



Total: 51 tpd

KTF Area 2012 VOC Emissions (tpd)



Total: 1,897 tpd

Table 2-1. Ranked contributors to KTF Area 2012 anthropogenic NOx emissions by source category within each sector.

NOx (tpd)	Percent of Sector-wide Emissions	Sector / Source Description
On-road mobile		
7.9	35%	Combination Long-haul Truck
4.6	20%	Passenger Car
3.5	15%	Passenger Truck
3.5	15%	Combination Short-haul Truck
1.4	6%	Light Commercial Truck
1.3	6%	Single Unit Short-haul
Point Sources		
7.9	96%	EGUs
0.3	4%	Non-EGU Industrial Sources
8.2	100%	On-road Subtotal
Off-road Sources		
7.9	54%	Agricultural Equipment
3.9	26%	Locomotives
1.8	12%	Construction and Mining Equipment
0.4	3%	Industrial Equipment
Area Sources		
1.1	50%	Fuel Combustion
0.9	42%	Oil and Gas
0.1	7%	Open Burning

- On-road vehicles, off-road equipment

CONTROL MEASURE SUMMARY

Table ES-1. Summary of control measures, cost-effectiveness, and potential NOx reductions.

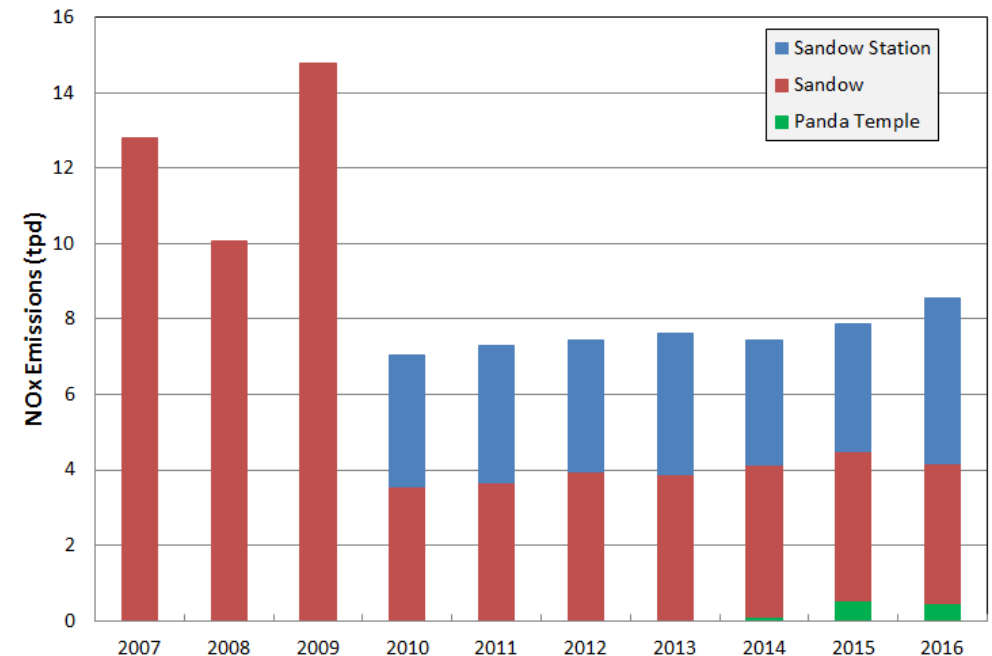
Strategy	Maximum Potential NOx Reduction (tpd) ^A	Qualitative Ranking of NOx Benefit ^B	Annual Cost Effectiveness (\$/ton/year) ^C	Qualitative Ranking of Cost Effectiveness ^D
Off-Road Equipment Repower/ Replacement	1.29	High	\$10K	High
Heavy-Duty Vehicle Repower/ Replacement	1.13	High	\$10K	High
Off-Road Engine Retrofits	0.55	Medium	\$8K-11.3K	High
Heavy-Duty Retrofits	0.67	Medium	\$10K-\$20K	Medium
Heavy-Duty Alternative Fuels	0.53	Medium	\$14K-\$40K	Medium
Inspection and Maintenance	0.67	Medium	\$23K - \$50K	Medium
Trip Reduction	0.53	Medium	\$1K- \$100K	Medium
Clean Diesel Fuel	0.02-0.25	Low	\$30K - \$382K	Low
Light-Duty New Technology	0.02	Low	\$200,000K	Low

- A. The maximum potential NOx reduction assumes full participation by sources in the KTF Area.
- B. Qualitative effectiveness categories include: Low (NOx reduction < 0.5 tpd), Medium (NOx reduction between 0.5 and 1 tpd), and High (NOx reduction > 1 tpd).
- C. Total control measure program cost divided by one year of NOx reduction.
- D. Qualitative cost efficiency categories include: Low (less than or equal to \$10K per ton of NOx), Medium (between \$10K and \$50 per ton of NOx), and High (greater than \$50K per ton of NOx).

OTHER SECTIONS OF CONTROL STRATEGY EVALUATION REPORT

- Review of KTF Area 2012 NO_x emission inventory
 - Power plant emission trends
 - New Panda Temple EGUs not in 2012 inventory
- Results of survey of KTF Area cities/school districts/airports
 - Current/planned programs that may improve air quality
- Review of recent rulemakings on air quality that may affect the KTF Area

Ozone Season Average EGU NO_x Emission Trends



END

TERP PROGRAMS

- Texas Clean School Bus Program: Reduce emissions from diesel exhaust from older school buses through retrofits. Currently closed.
- New Technology Implementation Grant (NTIG) Program: Assist in the implementation of new technologies that reduce emissions from point sources. Currently closed.
- Texas Clean Fleet Program (TCFP): Funding for owners of large vehicle fleets to replace heavy-duty and light-duty on-road diesel fleet vehicles with alternative fuel and hybrid vehicles. Currently closed.
- Texas Natural Gas Vehicle Grant Program (TNGVGP): Funding for repower of heavy-duty or medium-duty vehicles with a natural gas engine or replacement with a natural gas vehicle. This program is accepting applications; the application period is expected to close on May 26, 2017.
- Clean Transportation Triangle (CTT) Program: Funding for natural gas fueling stations. Currently closed.

CTCOG COUNTY TERP ELIGIBILITY

Table 5-1. TERP Programs and KTF Area eligibility²⁶.

TERP Programs	KTF Area Eligibility
Texas Clean School Bus Program	All counties eligible
New Technology Implementation Grant (NTIG) Program	
Texas Clean Fleet Program (TCFP)	Bell and Milam counties eligible, other counties ineligible
Texas Natural Gas Vehicle Grant Program (TNGVGP)	
Clean Transportation Triangle (CTT) Program	
Emissions Reduction Incentive Grants (ERIG)	Ineligible
Rebate Grants Program	
Alternative Fueling Facilities Program (AFFF)	
Drayage Truck Incentive Program (DTIP)	
New Technology Research and Development Grants	Discontinued in September 2011

Texas Natural Gas Vehicle Grant Program (TNGVGP)

- Application Opening: **Now until May 26, 2017** (may close early if allocated funds are granted prior to May 2017)
- Target Emission Sources: Heavy- and medium-duty diesel or gasoline vehicles (>8500 lbs GVWR)
- Target Applicants: owners, lessees, or those who commercially finance a heavy-duty or medium-duty vehicle that is operated in Texas
- Grant amount: Maximum eligible grant amount is up to 90% of the incremental cost for the replacement or repower
- Technology: New natural gas vehicles (at least 75% of vehicle power must be from compressed or liquefied natural gas)
- Project Selection: First-come, first-served
- **Additional details available at TNGVGP webpage:**
<https://www.tceq.texas.gov/airquality/terp/tngvgp.html>

FEDERAL PROGRAMS: EQIP AND DERA

- Grant funds are available under the US Department of Agriculture (USDA) Environmental Quality Incentives Program (EQIP) for a variety of agriculture resource conservation activities, including diesel-fueled agricultural equipment replacement.
<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip/#links>
- EPA issues Diesel Emission Reduction Act (DERA) grants and rebates under the National Clean Diesel Program to reduce emissions from diesel engines.
 - Projects eligible to apply for funding include verified engine retrofits, engine repower, vehicle or equipment replacement, idle reduction technologies and verified aerodynamic and low rolling resistance tires.
 - Eligible vehicles and equipment include school buses, heavy duty trucks, locomotives, and marine engines.
 - Eligible applicants include regional, state, local or tribal agencies and nonprofit organizations or institutions. <https://www.epa.gov/cleandiesel/clean-diesel-national-grants>