SCOTT A. THOMPSON
Executive Director

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

MARY FALLIN
Governor

June 15 , 2018

Laura Bunte, Mail Code C304-01
U.S. EPA, OAQPS
109 TW Alexander Drive
Research Triangle Park, NC 27711

Re: 2017 Ozone Advance Update—Oklahoma City Metropolitan Area

Dear Ms. Bunte:

The Oklahoma Department of Environmental Quality (DEQ), Air Quality Division, in collaboration with the Association of Central Oklahoma Governments (ACOG) hereby submits the Oklahoma City (OKC) Metropolitan Area 2018 update to our Ozone Advance program. This is a "living" document and will continue to be updated as programs are added or evolve. The OKC Metro Area has participated in EPA's Ozone Advance program since May 30, 2012. The enclosed list of Ozone Advance initiatives and ongoing programs provides status updates to many of the voluntary and mandatory programs listed in the 2017 submittal, along with several new programs.

DEQ was pleased when EPA designated each of the counties in the Oklahoma City MSA as attainment/nonclassifiable for the 2015 ozone standard in November 2017. It is our conclusion that participation in the Ozone Advance program, along with the more moderate weather in the area, aided this designation and continues to have a positive impact on ozone levels. We are hopeful for another good year.

We look forward to continued participation in the Ozone Advance program. Should you have any questions, please feel free to contact Nancy O'Brien or Melanie Foster of my staff at 405-702-4100.

Sincerely,

Eddie Terrill
Division Director
Air Quality Division

cc: Ken Boyce, EPA (6MM-AB)
Randy Pitre, EPA (6MM-AB)
Eric Pollard, ACOG
John M. Sharp, ACOG

Enclosures

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Air Quality Awareness Grants	ACOG	Ongoing	City, county and tribal governments along with public schools, public school districts and public universities are eligible to receive CMAQ funds for small infrastructure projects and public education programs that assist in the reduction of single-occupancy trips and/or ozone-forming emissions. Four Air Quality Awareness grant projects have been completed by: Cleveland Area Rapid Transit (CART), City of Oklahoma City, City of Norman, and City of Yukon. Projects included bicycle racks, bicycle repair equipment, vehicle wraps, and educational materials. **2018 Update: ACOG is preparing to issue a new funding RFP in Late Summer/Early Fall 2018.**	April 2014 - Continuous
Bike to Work	ACOG	Ongoing	Every year, the third Friday of May is designated as Bike to Work Day and communities throughout Central Oklahoma participate by holding group bicycle rides and events. Numerous communities have participated in the program since its inception. In addition, there are Bike to School and Bike to Church held throughout the region. **2018 Update: The cities of Edmond, Guthrie, Moore, Norman, Oklahoma City, and Yukon sponsored Bike To Work Day rides in May 2018.**	2005 - Continuous
Central Oklahoma Commuter Corridors Study (CentralOK!go)	ACOG	**Complete**	Following up on recommendations from the 2005 Regional Fixed Guideway Study, CentralOK!go is the next step in the federal planning process for evaluating the feasibility of a regional transit system. This study will provide more in-depth analysis and information concerning an alignment, technology, ridership forecasts, estimated costs, and potential funding sources for each corridor.	2013 - 2014
GetAroundOK.com	ACOG	Complete	Encourages the use of alternative transit by providing information on carpooling, public transit and other means of green transportation. Users can log their green transportation use and search for carpools in their area. **2018 Update: To date, 16,764 commutes have been logged throughout the region, resulting in the reduction of 7,195 trips and reducing fuel use by 14.1K gallons. The software program was discontinued in 2017, but ACOG is updating a regional ride sharing strategy and is planning to launch a replacement in the next 12 months.**	2012 - 2017
Ozone Alert Day Notifications	ACOG	Ongoing	Email notifications of Ozone Alert Day declarations in Central Oklahoma are serviced to elected officials, policymakers and members of the public via email. Linked content includes information on public transit throughout Central Oklahoma, information on the health impacts of ground-level ozone and a link to the Oklahoma Department of Transportation online camera-based traffic monitoring system. **2018 Update: In 2017, five Ozone Alert Days were declared; notifications were sent to a total of 623 recipients with an average open rate of 24.72% and an average click-through rate of 8.9%.**	Continuous
Public Alternative Fuel Stations	ACOG	Ongoing	**2018 Update: Within the state, there are currently 101 compressed natural gas (CNG) stations, 6 propane fueling stations, 43 electric vehicle (EV) charging stations, 36 ethanol (E85) stations, and 1 liquefied natural gas (LNG) station.**	Continuous
Social Media Public Outreach	ACOG	Ongoing	Central Oklahoma's MPO utilizes Facebook and Twitter to keep members of the public updated on air quality and air quality-related issues throughout the region, state, country and world.	2009 - Continuous

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Transportation Alternatives Program	ACOG	Ongoing	Approximately $2.8 million will be administered to bicycle and pedestrian infrastructure projects throughout the Central Oklahoma region as part of MAP-21 through TAP. Eligible projects include on-road and off-road trails, safe routes for non-drivers, rails-to-trails conversions and Safe Routes to Schools projects. **2018 Update: Approximately $8.4 million will be administered to fund bicycle and pedestrian infrastructure projects throughout the Central Oklahoma region as part of the STBG-UZA (TAP) set aside through the FAST Act. Eligible projects include on-road and off-road trails, safe routes for non-drivers, rails-to-trails conversions, and sidewalk projects. Currently, all of the 21 awarded projects are in the drafting stages.**	April 2014 - Continuous

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Transportation Systems Management (TSM) Projects	ACOG	Ongoing	Emission reduction strategies that may include: intersection improvement projects, signal improvements, signal coordination efforts, Intelligent Transportation System (ITS) enhancements and bicycle and pedestrian facilities. These projects reduce transportation-related emissions by improving traffic flow and reducing congestion throughout the region. **2018 Update: ACOG is adding an activity based component to the model in FY 2019. This will help model trips by pedestrian and cyclists.**	Continuous
Open Streets OKC	ACOG, Oklahoma City-County Health Department	Ongoing	The Open Streets event promotes active transportation and the relationship between transportation mode choice and public health and has drawn around 65,000 total attendees from across the region. Businesses and organizations participate all along the route with fun and active activities for families. The event earned significant media coverage and calls for more walkable development, biking infrastructure and accessible, quality transit through Oklahoma City. The event is planned to now occur twice a year beginning in 2015. **2018 Update: The 6th and 7th Open Streets OKC events were held in October 2017 and April 2018 with 20,000 to 25,000 participants and over 78 community activity vendors.**	Ongoing
Oklahoma Electric Vehicle Coalition (OEVC)	ACOG, Utilities, Local Governments, Vehicle Manufacturers, Charging Station Providers	Ongoing	**OEVC are held every other month throughout the year.** The coalition has worked to idenity objectives, goals, and strategies around increasing the amount of electric vehicles and electric vehicle charging stations in Oklahoma. The coalition worked to be included in the Federal Highway Administration's (FHWA) Alternative Fuel Corridor designations as well as Volkswagen Settlement electric vehicle charging station investments.	2016-Ongoing
Clean Fuel use	Central Oklahoma Clean Cities	Ongoing	The Central Oklahoma Clean Cities 2014 annual survey of stakeholder fleets showed a reduction of 6,651,144gallons of gas equivalent (GGEs) of petroleum fuel used. The survey indicated that 97% of the recorded petroleum reduction can be attributed to alternative fuel vehicles. The majority of the remaining reduction can be attributed to idle reduction fleet policies and technologies. Central Oklahoma stakeholder fleets accounted for 4,479 on-road vehicles operating on alternative fuels. Deployment of compressed natural gas (CNG) vehicles and fueling stations resulted in 86% of petroleum fuel reduction, followed by E85 ethanol-blend (8.8%), and LNG, liquefied natural gas (4.1%). **2018 Update: The preliminary results of the Central Oklahoma Clean Cities 2016 annual survey of stakeholder fleets showed a reduction of over 8,381,000 GGEs of petroleum fuel used. The survey indicated that 90% of the recorded petroleum reduction can be attributed to alternative fuel vehicles. The majority of the remaining reduction can be attributed to idle reduction fleet policies and technologies. Central Oklahoma stakeholder fleets accounted for over 2,760 on-road vehicles operating on alternative fuels. Deployment of compressed natural gas (CNG) vehicles and fueling stations resulted in 87% of petroleum fuel reduction, followed by propane (5.9%), and E85 ethanol-blend (4.9%).**	1996 - Continuous

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Bicycle Master Plan	City of Edmond	Ongoing	The Bicycle Master Plan, completed in 2012, defines a network of trails and on-street bicycle/pedestrian corridors to promote bicycling as a viable form of transportation throughout the City. This enhances the 1999 Edmond Trails and Sidewalk Master Plan to include on-street bicycle facilities. In 2013, 2 miles of bike lanes were completed around the University of Central Oklahoma. Side paths along the arterials Covell Rd and Kelly Rd were also completed, totaling approximately 6 miles. Arcadia Lake Coalition: In 2012, a Public/Private partnership was also formed with the goal of creating a bicycle/pedestrian trail around Arcadia Lake. In 2018-2019 the primary focus for the Coalition will still be the north side of the lake along Rt 66, and the west side of I-35, which will eventually connect Hafer Park and Spring Creek Park at Arcadia Lake. Spring Creek Trail: This trail is complete. The ribbon cutting ceremony took place on April 28th, 2018, but was open to the public months in advance. It extends from the East side of I-35, under the highway, and along Spring Creek to Spring Creek Park at Arcadia Lake. It totals approximately 3.1 miles. Currently, people who want to park and ride can park at Spring Creek Park at Arcadia Lake. More work will be done next year to connect the western end of the trail to the Wal-Mart/Sams shopping area, and to Fox Lake Trail. Fox Lake Trail: The Fox Lake Trail was completed in 2015, which is behind the Wal-Mart and Sam's at 15th and I-35. It currently extends from 15th St to Fox Lake Ln. When the north and south extensions to this trail are completed, it will total approximately 1.3 miles. It will connect with Spring Creek Trail on the north, and Mercy Hospital on the south. Shared Lane Markings: In 2015 approximately 13 miles of shared lane markings were added to six primary corridors to encourage users to share the road. Financing Trails: In 2018-2019 the Arcadia Lake Trail Coalition continues to raise money, while the City is combining two ODOT Grants for a percentage of the Route 66 Trail from Midwest Blvd to the Arcadia Lake Park office. The City also applied for the ODOT Tap Grant for construction of the Creek Bend Trail, which would connect the Spring Creek Trail to Coltrane Rd. In addition, the City used ODOT Tap money for the north and south linkages on Fox Lake Trail, which will be completed in 2019.	2019

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Alternative Transportation	City of Edmond	Ongoing	**Citylink Transit:** The City of Edmond has had the Citylink Transit System in place since 2009. It offers citizens an alternative form of transportation to and from work, shopping, medical visits and the University of Central Oklahoma (UCO). There are four fixed routes within Edmond city limits and one commuter route to the OKC bus terminal and the OKC Social Security Office. The City also has the paratransit service, which is for persons with a disability or seniors who cannot drive, within Edmond city limits. All Citylink regular route buses are equipped with wheelchair lifts and bike racks. In 2016 the City received 3 new buses, which can all run on alternative fuels, propane or unleaded. In 2017 there were 2 replacement buses and 2 new mini-vans. The mini-vans run mostly on the paratransit so it will be more efficient with cost, maintenance and fuel. The two expresslink buses seat 30 passengers and are fueled with clean diesel. The local route buses can carry 19 passengers, and 3 of the buses are fueled with compressed natural gas. 8 are fueled with duel fuel propane and unleaded. Since the transit systems' inception, there have been more than 1.5 million riders. Also in 2017, the City installed 106 accessible bus stops, whereas before the stops have been unstructured. The bus stops ensure better passenger safety and timing on the bus routes. Traffic congestion is alleviated by keeping the buses on structured stops; this is also a mitigation measure for better air quality. McDonald Transit manages the Citylink transit system for the City of Edmond, while Edmond city staff maintains the vehicles and assists with planning functions. **EV Vehicles:** In 2018 Edmond Electric bought an EV for the City (Electric/Public Works) use. **In 2019 Water Resources also has plans to purchase two new EV vehicles for their fleet. This department also installed three EV charging stations at the new Water Resource and Recovery Facility. For the private sector, three charging stations have been installed at the new hotel/conference center at I-35 and Covell Rd through a partnership with Edmond Electric. The City is hoping to achieve similar arrangements with other private partners as we move forward. Promotion: Beginning in 2018-2019 the City will begin promoting all forms of alternative transportation through an intiative called "Edmond Shift." Edmond Shift will be a policy that encourages, promotes, plans, and creates active transportation alternatives to improve how people can conveniently and safely walk, bike, ride the bus, share a car, and drive throughout Edmond. The Edmond Shift logo will begin to appear on a variety of projects that make it easier for people to use all the transportation options available in the City.**	2019

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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City Facility Rehabilitation Facility Maintenance	City of Edmond	Ongoing	Among improvements that have been made are white roofs, LED lighting, and more energy efficient HVACs. In 2014, three buildings received white roofs. They are Mobile Meals, the Downtown Community Center, and the Historical Museum. Four buildings received LED lighting. They are Mobile Meals, the Historical Museum, Kickingbird Golf Club, and one Zone at the Crosstimbers Municipal Complex. The new Edmond Downtown Health Clinic also has LED lighting. In 2014 four buildings received more energy efficient HVACs. They are Fire Stations 1, 2, and 3, and the Downtown Community Center (DCC). In 2015 six out of seven HVAC units were replaced on the Mobile Meals facility with higher SEER ratings. The new Water Distribution Station on Danforth Rd has LED lighting and geothermal heat pumps. Also, the Water Treatment Plant has changed out some large wattage lights (1000 watts each) in the filtering room to LED lights. In 2016 the Downtown Community Center received a total of 8 new Package HVAC units, and the Planning and Public Works Building received a new 35 ton chiller. In 2017 lights at the Crosstimbers Municipal Complex were replaced with LEDs, as well as the interior lights for the garage at Vehicle Maintenance. **2018 Update: In future fiscal years FY18-19 exterior lights and parking lot lights are scheduled to be changed from Halide to LED. Office and remaining lights at Vehicle Maintenance will be changed, and Mobile Meals is also scheduled to receive more energy efficient windows next year. A new 20 ton heat pump and cooling tower is currently in the process of being installed for Council Chambers. In 2018 LED lights were installed at the Historical Museum and HVAC upgrades are planned after July 1, 2018. In 2018 the City also installed a white TPO roof on the front of the DCC and on the flat roof on Mobile Meals. Thermoplastic polyolefin (TPO) roofs are among the fastest growing commercial roofing products, for their performance and installation advantages. These are heat-reflective and energy efficient roofing systems and the single-ply membrane provides resistance to ultraviolet, ozone and chemical exposure.**	2018, 2019
Decrease Idling Time	City of Edmond	**Ongoing**	In 2015 the Fleet Maintenance Manager addressed excessive idling with City staff. In 2016 a Fleet Idle Reduction Departmental Directive was created and distributed to City Staff, approved and supported by City management. All department heads have been made aware of this new policy directive. **This program is ongoing and will continue to be monitored.**	**Complete**
Energy Efficiency	City of Edmond	Ongoing	In 2014 City staff created an internal committee that currently meets intermittently, or as needed. The role of the committee is to discuss such topics as operational efficiencies for vehicle fleet, city facilities, and city programs that promote other sustainable practices. Water resources, solid waste, energy efficiency, renewable energy and fuel efficiency are among the topics discussed. **2018 Update: In 2018 the new Water Resources Administration Building was built and contains several features that not only save energy, but also provide a learning experience for the many tours that are offered. The 2015 International Energy Conservation Code (IECC) is used as the standard for the new facilities, although this code has yet to be adopted by the State. A small solar project for the building, LED lighting, white roofs and/or green roofs, and geothermal wells have been incorporated into the design, as well as an area for small groups to be taught. In future years new facilities for water and wastewater treatment, as well as 2 new lift stations will be constructed. As a standard part of these designs, variable frequency drives and soft starts are now a standard practice. In addition, in 2018 the Central Edmond Urban District Board is contracting for a design solution for more efficient downtown decorative lighting.**	Continuous

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Energy Benchmarking Planning	City of Edmond	In Progress	In 2015 the City switched to new customer billing software for the utility database (CIS Infinity). Reports are run inside the software where usage data can be obtained. As the City becomes more invested in future expansions of the utility software, there are expected to be even better options for energy analysis. **2018 Update: For Energy Benchmark Planning the City is in the final phase of going live with Advanced Infinity Version 4, expected to be installed by mid to late summer. The Sustainability/Planning office compiles and disseminates energy usage reports to the various departments.**	**2015-present**

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Energy Management Systems	City of Edmond	Ongoing	Energy Management Systems are a combination of building management and advanced software solutions to assist managing building functions in a more energy efficient way, and to provide demand response controls when situations within the power grid demand it. In 2005 these systems were installed for the Crosstimbers Municipal Complex, Animal Welfare, and Fire Station V. In 2008 this system was installed for the Edmond Historical Museum. In 2011, through the EECBG, eleven additional facilities were upgraded for HVAC and lighting controls. On the newer installations the average savings have been around 23%. Delta Energy Management Systems were upgraded at the Crosstimbers Municipal Complex, Animal Welfare, the Historical Museum and Fire Station V to include lighting management and the use of 2 hour overides when the buildings are being used in off hours. In addition to these four areas, Fire Stations 1, 2, 3, and 4, the Downtown Community Center, the Planning and Public Works building, the Municipal Court, the Council Chambers, the City First Building, and the Mitch Park Activity Center have all received the new version of Delta for controlling lights and HVAC. In 2016 the new Public Safety Center had an energy management system installed that is controlling the 140 ground source HVAC units throughout the 70,000 square foot building. Hot water is provided by a centralized boiler in the basement. Delta Systems were also installed in the Mobile Meals facility and the new IT building (includes 4 variable speed ground source heat pumps).	Continuous
Green Power Community Designation	City of Edmond	Ongoing	The City of Edmond became the first municipality in Oklahoma to receive Green Power Community designation from the Environmental Protection Agency through their use of renewable energy. With overall use of more than 97 million kilowatt-hours of green power per year, close to 74% of the City of Edmond's facilities are powered by wind energy technology and 11% of residents and businesses in Edmond opt to use green power as a portion of their electricity via the Oklahoma Municipal Power Authority. Geothermal energy is utilized to save energy on the YMCA facility as well as the 70,000 square foot Public Safety Center. These forms of energy reduce the use of power generated from point sources of emissions. **2018 Update: The City kept this designation for the sixth year. According to the program the City of Edmond is ranked 14th in the country, based on annual amount of green power purchased.**	Continuous
Solar Installation	City of Edmond	Ongoing	**2018 Update: Solar is not expected to play a large role in the City's energy portfolio, but the Water Resources Department incorporated it into the design of the new Water Treatment Plant in 2017.**	Complete

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Geothermal Installation	City of Edmond	Ongoing	The Mitch Park YMCA and Edmond Public Schools Competitive Pool installed 300 geothermal wells, and the expectations are that it saves an estimated 50% on energy operating costs. The new Public Safety Center, which now houses the Edmond Police Department, Public Safety Communications, and Emergency Management functions, received 140 geothermal wells, which is expected to save $12K - $15K per year in heating and cooling. In 2016 Geothermal wells were installed for the new Public Safety Center and the facility is now open. **2018 Update: In 2017 geothermal wells were also used in the design, along with solar, for the Water Resources facility.**	Complete
ITS Engineering	City of Edmond	In Progress	Intelligent Transportation Systems have been installed at signalized intersections. ITS should facilitate the management of traffic during congested periods, allowing better mobility and resulting in less idle time. It includes 21 intersections along Edmond Rd/2nd St from Santa Fe to Saints Blvd. Intersections are hard wired via fiber optics. There is also a wireless component that connects four water towers, which will also be hard wired with fiber optics. The intersection controllers are using the latest NTCIP commuications protocol and are connected to the Traffic Management Center. The intersections have a battery backup system, emergency pre-emption system, CCTV's, redundant vehicle detection systems, LED signal indications, flashing yellow left turn arrows, and audible pedstrian systems. **2018 Update: Phase I of Edmond ITS is complete. Phase II of Edmond ITS will include 22 intersections and contracts will be let by ODOT in August 2018. Construction is expected to follow in late September 2018.**	2017-present

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Open Streets Edmond	City of Edmond	Ongoing	On November 3rd, 2013, the City of Edmond held Oklahoma's first Open Streets event, closing off a stretch of University Drive near the University of Central Oklahoma campus to celebrate the opening of Edmond's first bike lane. From 2PM to 4PM University Drive was closed to vehicular traffic to allow for pedestrians and bicyclists to participate along with a series of activities and local vendors. This is an event that the City hopes to host in coming years, which helps to promote bicycling as an alternate and recreational form of transportation. In addition the Edmond Bicycle Committee promotes bicycling through different venues, such as Citizen Bank's 'Heard on Hurd', where information is distributed about places to ride. **2018 Update: The Bicycle Committee for the City of Edmond is involved in hosting multiple bicycle events. May events in 2018 included the Edmond Family Bike Ride, the Flat Tire Repair Clinic, the Bicycle-Pedestrian Counting Project, Bike to Work Day and Bike to Church Day, and Moonlight rides; all of these events give important recognition for this mode of transportation.**	Continuous
Renewable Energy - Edmond Electric	City of Edmond	Ongoing	**Renewable Energy and Efficiency Programs:** Sale of the available wind power to Edmond Electric customers. Free residential and commercial energy audits for Edmond Electric customers. Approximately 25% of the energy supplied by the OMPA to its Members is renewable, coming from wind, hydro, and landfill gas. **Edmond Electric also has LED light giveaways.** **Customer Rebates and Financing:** Edmond Electric offers **rebates to customers for the purchase of energy efficient HVAC and ceiling insulation improvements. Commercial rebates for energy efficiency & demand reduction improvements are also available, as well as financing incentives for residential and commercial geothermal loop installations.** **Equipment and operations:** Investigation of the cost and impact of converting electric and water use meters to electronic read and data capture systems. (AMR/AMI) **In April, 2017 the City re-opened the Pure and Simple wind program to new customers. City of Edmond facilities currently purchase 73% of their energy through the Pure and Simple program.**	Continuous

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Urban Forestry	City of Edmond	Ongoing	Urban Forestry, a division of Community Image, administers multiple programs that support and enhance Urban Tree Canopy in Edmond. Trees remove pollutants such as ozone from the air, reduce energy consumption and emissions, and provide many other environmental services. New trees are planted each year on public property around City facilities, along right-of-ways, and on park land and detention areas through special Urban Forestry projects, Arbor Week, and the volunteer program. In addition, Urban Forestry plants trees along right-of-ways in residential areas through the Foster-A-Tree program. Urban Forestry hosts periodic tree distributions and works with Edmond Electric in facilitating their 'Energy Saving Trees' program, also partnering with the Arbor Day Foundation. Through this program, customers use an online module to determine the most appropriate species available and the best location to plant the tree in order to maximize energy savings. Recent updates to the landscape requirements within Edmond's Title 22 Zoning Ordinance include requirements for the planting of trees and new incentives toward preserving trees. These revisions were drafted by the Edmond Urban Forestry Commission and are now enforced by the Urban Forestry Department. Urban Forestry also actively fosters public engagement and education through programs such as the Edmond Tree Awards, Arbor Week, the volunteer program, Edmond Tree Mail, and social media.	Continuous
Bicycle Promotion Events	City of Edmond	Ongoing	On November 3rd, 2013, the City of Edmond held Oklahoma's first Open Streets event, closing off a stretch of University Drive near the University of Central Oklahoma campus to celebrate the opening of Edmond's first bike lane. From 2PM to 4PM University Drive was closed to vehicular traffic to allow for pedestrians and bicyclists to participate along with a series of activities and local vendors. **2018 Update: This is an event that the City hopes to host every year, which helps to promote bicycling as an alternate and recreational form of transportation. In addition the Edmond Bicycle Committee promotes bicycling through different venues, such as Citizen Bank's "Heard on Hurd," where information is distributed about places to ride. Bike to Work events and Moonlight rides are also hosted by the organization, giving recognition to this important mode of transportation.**	Continuous
CNG and Alternative fuel use	City of Norman	Ongoing	The City of Norman operates 90 light-duty CNG pickups and sedans, and 26 heavy duty CNG refuse haulers and trucks. In 2012, the city installed both fast-fill and time-fill fueling facilities to serve its growing fleet of natural gas-powered vehicles. Norman also has an idle reduction policy currently applied to approximately 90 of its heavy duty vehicles that reduces engine idling by up to 90 minutes per day per vehicle and saves up to 0.75 gallons of fuel per day per vehicle. They also programmed into vehicles' onboard computers to limit idle time to 5 minutes in 56 refuse haulers.	Continuous
Patience S. Latting Northwest Library	City of Oklahoma City	Complete	The Patience S. Latting Northwest Library is one of two LEED-certified Oklahoma City facilities and Oklahoma's first LEED-certified public library. The 35,000-square-foot building includes LED lighting, day-lighted interiors, drip irrigation, geothermal heating and cooling, water-efficient plumbing fixtures, and other features to reduce energy costs.	**Complete**

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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2017 General Obligation Bond	City of Oklahoma City	Ongoing	In September 2017, Oklahoma City voters approved a 10-year, $967 million bond package to fund basic infrastructure and services. Specific projects include: $14.2 million for new transit buses; $4.1 million for improvements to transit stops including new shelters and sidewalk connectivity; $3.9 million for improvements to existing multi-use trails and $4.4 million for the addition of new trails; $18.7 million for new sidewalks; $29.3 million for streetscape projects; $155 million for resurfacing of arterial streets; $138.9 million for resurfacing of neighborhood and residential streets; $24.8 million for improvements at intersections; and $24 million for traffic bridge rehabilitation and construction including a new pedestrian bridge.	2017 - Ongoing
2017 Temporary Sales Tax Extension	City of Oklahoma City	Ongoing	In September 2017, Oklahoma City voters approved a 27-month one penny sales tax extension projected to generate $240 million for transportation projects. This proposal was specifically a response to the City's needs for improved street conditions based on resident feedback. The debt-free projects to be funded through this extension include $168 million for street resurfacing, $24 million for streetscapes, $24 million for sidewalks, $12 million for trails, and $12 million for bicycle infrastructure.	2018 - Ongoing
Residential Curbside Recycling Expansion	City of Oklahoma City	Ongoing	Beginning in FY19, the City's curbside recycling program will expand service to 6,000 new customers and shift fully to 195,000 96-gallon polycarts from 18-gallon containers. Recyclable goods drop-off centers are being constructed in rural areas without curbside service. This will significantly increase set-out rate and waste diversion and thereby reduce landfill emissions. Both the public and private fleets of waste haulers are CNG-powered.	2018 - Ongoing
City Facility Recycling	City of Oklahoma City	Ongoing	Multiple City facilities have dedicated recycling service including deskside containers. These ensure workers at campuses across the city can contribute to reduced landfills and emissions.	2012 - Ongoing
Electrical Vehicle Ordinance	City of Oklahoma City	Complete	The City adopted an ordinance to authorize the designation of city street parking spaces for exclusive use by electric vehicles while charging. The ordinance establishes, aside from requirements, a violation and penalty for misuse of designated electric vehicle spaces. This policy now allows for applications to designate electric vehicle parking spaces needing only approval from the City's Traffic and Transportation Commission.	2017 - Ongoing
Green Home Loan Program	City of Oklahoma City	Ongoing	In 2010, the City created a revolving loan fund with a portion of the formula grant from the Department of Energy's Energy Efficiency Conservation Block Grant (EECBG) program. Qualifying Oklahoma City homeowners with a household income of $100,000 or less can receive a loan of up to $15,000 for up to 48-months at a 3% fixed interest rate for energy efficiency improvements. To date, more than 100 Oklahoma City homeowners have received loans totaling more than $750,000 for improvements ranging from HVAC systems and new or added insulation to modern, efficient appliances and cool roofs.	2010 - Ongoing
City of Oklahoma City Fire Station #6	City of Oklahoma City	Complete	Oklahoma City's Fire Station #6 opened in September 2011 as the first city-owned building to receive the Silver LEED certification. The $2.9 million, 12,600-square foot station received credits for energy-saving features such as salvaged brick pavers in the foyer, a hydronic heating system in the rig room, a roof that reflects heat rather than absorbs it and energy and water efficiencies that are expected to save the city $30,000 over the coming years. Building construction utilized recycled and locally produced materials to reduce the environmental footprint. The land the station is built on required brownfield remediation, in this case oil-field cleanup.	2011 - Ongoing

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

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Oklahoma City Public Tree Inventory	City of Oklahoma City, Oklahoma City Community Foundation, Oklahoma Department of Forestry Services	Ongoing	In 2016, the Oklahoma City Community Foundation contracted with Davey Tree Service to evaluate the health of park trees on Oklahoma City parkland. During a four-month time span, more than 19,000 trees were surveyed in 134 city parks. The result is an expansive inventory of each individual tree that will help park forestry crews prevent disease and ensure the viability of the city's urban tree canopy. Almost 20,000 trees were inventoried and found to remove approximately 8.1 tons of pollutants annually including ozone, nitrogen dioxide, VOCs, carbon dioxide, and particulate matter. This inventory serves as a primary management plan for the City's parkland canopy.	2016 - Ongoing
Southwest Oklahoma City Public Library	City of Oklahoma City, Pioneer Library System	Complete	The $3.9 million, 20,000-square foot public library was constructed with sustainable materials obtained within a 500-mile radius of Oklahoma City and included geothermal heating and cooling systems to reduce the facility's energy use.	2012 - Ongoing
CNG and Alternative fuel use	Cleveland Area Rapid Transit (CART) -University of Oklahoma	Ongoing	**2018 update: The University of Oklahoma currently has 251 on-road vehicles fueled by alternative energy sources including; 103 CNG vehicles, 19 Cleveland Area Rapid Transit buses fueled with B20, 129 E85 vehicles, 13 fuel-efficient hybrid-electric cars; and 49 low-speed electric vehicles.**	Continuous
CNG Fleet Addition	DEQ	Ongoing	DEQ has long-term plans to replacea number of gasoline fueled vehicles with CNG fueled vehicles on a rolling basis. These will be distributed around the state, in Oklahoma City as well as in Tulsa and local offices. The fleet currently includes 15 bi-fuel trucks and two dedicated CNG vehicles, one of which is in the OKC area.	Continuous
Air Quality Public Outreach	DEQ	Ongoing	The Department participates in multiple public outreach and education programs, which emphasize the importance of informing individuals about the effects of ozone on citizens' health. This includes producing/supplying ozone education materials, creating online videos encouraging energy efficiency and issuing ozone watches for the Oklahoma City MSA. DEQ began its Air Quality Health Advisory Program in 2006, issuing real time email notifications of unhealthy concentrations of ozone. In 2014 the Air Quality Division added an infographics gallery featuring original infographics with a local focus on the relationship between air quality and weather. **2018 Update: In 2017, DEQ has utilized its social media sites of Facebook, Instagram, and Twitter to issue Ozone Health Advisories in addition to its list of subscriber emails and text messaging.**	Continuous

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Energy Conservation Program	DEQ	Ongoing	The Oklahoma Department of Environmental Quality received an award from Governor Fallin on November 10, 2015 for being the first state agency to hit the 20% energy savings goal. The award for 20% reduction was based on a month to month normalized electric savings, using 2012 as the baseline year. Currently, DEQ averages an annual normalized electric reduction of 19.9% since the program's inception in 2012. Some of these savings result from behavior change, but many of DEQ's energy savings derive from mechanical building improvements. The annual normalized average of 19.9% savings equates to 1,135,705 kWh. DEQ has volunteered to set a new goal to achieve 30% electric reduction by 2020.	2012-2020
Lawnmower Exchange Program	DEQ	Ongoing	Citizens of the Oklahoma City MSA can exchange their old gas-powered lawn mower for a cash waiver toward the purchase of a new electric lawn mower.In 2015, 95 gas-powered mowers were traded in for recycling, and 71 new electric mowers were purchased with vouchers. Emissions reductions were estimated to be approximately 63 lbs of NOx, 47 lbs of PM, 17,121 lbs of CO and 2,561 lbs of HC. Three exchange events were held in the spring of 2015. Oklahoma County had the most exchanges (72), followed by Cleveland (15), Canadian (5), and one each for Garvin, Logan, and Lincoln counties.	Completed
Open Burning Rule	DEQ	Ongoing	This rule is expected to reduce PM, VOC and NOx emissions within the Oklahoma City and Tulsa Metropolitan Statistical Areas (MSAs) by requiring the use of an air curtain incinerator in place of open burning. This will significantly reduce the amount of ozone precursors generated by the burning of wood waste, with an approximate 90% reduction in total air pollutants. Additionally, this rule will prohibit open burning of waste in areas for which an ozone or PM Alert is in effect. In 2014, DEQ performed outreach to fire departments in the OKC and Tulsa Metropolitan areas to explain the rule. These fire departments are now assisting in enforcement of this rule, and as a result, many land clearing operations that would have just piled and burned in years past are either using an ACI, chipping, or having the waste removed from their property.	Completed
Solar Powered Monitoring Station	DEQ	Ongoing	In 2015, the Air Quality Division installed a 10.5 kW solar array at the Oklahoma City North monitoring site. The array consists of 35 LG 300 watt solar panels that generate approximately 16.280 MWh per year. This solar array has lowered the electric bill at the OKC North monitoring site by reducing the amount of electricity pulled from the power grid. The array was designed to produce approximately 75% of the power the site requires. There are no batteries to store power at the site, and excess power is fed directly into the grid. **2018 Update: Lifetime revenue saved at the site is over $4,500. The site has saved over 72,000 pounds of CO2 emissions and represents the equivalent of 1,818 trees planted.**	Completed

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Green Commuter BINGO	DEQ	Complete	The DEQ Green Team and the Air Quality Division sponsored Green Commuter BINGO in the month of May to help reinforce the efforts of Air Quality Awareness week in early May. BINGO activities included raising awareness of the agency's health advisories shared on social media, and ways to reduce motor vehicle emissions by changing travel habits and trying alternative methods of commuting. Prizes, provided for by the Green Team, were awarded to employees who successfully completed their BINGO cards.	2018 Ozone Season
Village Green Park Benches	DEQ	Existing/Planned	The DEQ and EPA installed a Village Green Bench (funded by an EPA grant) at the Children's Garden of the Myriad Botanical Gardens In Downtown Oklahoma City in 2015 as part of a national pilot study. The bench was officially opened at a November 10, 2015 ribbon-cutting ceremony which included EPA Region 6 Administrator Ron Curry, DEQ Executive Director Scott Thompson, state and city officials, and students from nearby John Rex Elementary School. The bench is equipped with portable instruments to measure ozone, fine particulate matter, and critical weather data, all powered by solar panels installed at the top. Monitoring data is collected in real time and sent to DEQ, the Village Green website, and an LCD display sign next to the bench. Visitors can use QR codes on the sign to see the mobile website data with graphs and look at what other benches around the country are measuring. Also, DEQ has added an Air Quality Flag that shows the Air Quality Index (AQI) forecast of the day through colored flags. Flags are changed daily after DEQ staff review the current and near-term air quality data, and often visiting children and their parents assist in the flag change. The Village Green project goal is to increase air pollution awareness by providing the public direct information about the air quality in their local communities. **2018 update: DEQ has the resources and the equipment to install another bench at some point in the future. No firm plans are currently available.**	Ongoing
Spokies Bikeshare Program	EMBARK	Ongoing	Launched in 2012 through EECBG funds, the Spokies bikeshare provides a transportation alternative around downtown Oklaoma City through bikeshare stations placed strategically throughout the Central Business Districts and abutting downtown commercial and residential districts. Over the past two fiscal years, ridership grew 29% and provided more than 18,000 bicycle trips via the system. The system will soon see an increase of 24 bikes and three additional stations to expand the system footprint.	2012 - Ongoing
Expanded Transit Service	EMBARK	Planned	Oklahoma City's bus transit service is proposed to expand to seven day a week service beginning in Q3 of FY19 contingent upon final adoption of the FY19 budget by City Council. This means Sunday service would be added commensurate with Saturday service, seeing 16 routes with one-hour frequency between 6:30 a.m. and 6:30 p.m.	2019 - Ongoing
National Drive Electric Week OKC	National Drive Electric Week OKC	New/Ongoing	2018 Update: In September of 2017, the third National Drive Electric Week event was held in Oklahoma City. Over 25 electric vehicles were displayed by dealerships as well as EV drivers. Ride and drives were provided. There are plans to hold another even in September 2018.	2015-Ongoing
Weather Festival	National Weather Center, Norman	Ongoing	The annual weather festival showcases the many weather related organizations and activities in central Oklahoma. This event features weather balloon launches, storm research vehicle displays, children's activities, amateur radio demonstrations and weather related information and products. The Air Quality Division is responsible for presentation space showcasing the division's programs and the air quality themed children's activity room.	2008 - Ongoing

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Solar Energy Pilot Projects	OGE Energy Corp.	Complete	In 2014, Oklahoma Gas and Electric (OG&E) launched a solar energy pilot project to test the deployment and operation of solar power on grid safety, maintenance, and reliability. Rooftop solar panels and battery storage facilities have been installed at several OG&E locations, and two community solar farms were developed at OG&E's Mustang Power Plant in 2015. The solar farms have a generating capacity of 2.5 MW which is roughly the equivalent of powering 500 homes.	Complete
Electric Vehicle Fleet	OGE Energy Corp.	Ongoing	**OG&E encourages the adoption of electric vehicles (EVs) and added 3 new EVs to the fleet in 2015 with additional vehicle acquisitions planned for 2017. In addition, the company is installing charging stations in several of its facilities in the metro OKC area so employees can conveniently charge their vehicles.**	Continuous
Electric Vehicle Promotion, Education, and Outreach	OGE Energy Corp.	Ongoing	OG&E has increased the amount of events, marketing, and other outreach conducted around the promotion of electric vehicles for their customers and employees. In May 2017, OG&E worked with Nissan to offer a $10,000 limited time discount for customers on the Nissan Leaf. OG&E has promoted EV's through traditional media marketing, social media, and their website.	Continuous
OG&E Energy Efficiency Programs-Residential	OGE Energy Corp.	Ongoing	Oklahoma Gas and Electric Company (OG&E) has the most widespread Smart Grid technology in the country, which offers variable pricing through their Smart Hours program. Smart Hours-Summer time of use pricing servicing 119,819 total customers and deploying 114,791 programmable thermostats since inception. Current estimated savings are 166 MW, (which includes the savings from the customers not on the program, but use our website, myOGEpower.com, to manage their usage). In 2016, OGE installed 10,314 thermostats and enrolled 26,705 customers. **2018 Update: In 2017 OG&E offered the following energy efficiency programs targeting Residential Customers:** **2017 Home Energy Efficiency Program (HEEP)** **1) Residential Free HVAC Tune-up and Plenum Seal** **2) OK Schools outreach; Educational Kit including install items for 5th grade students** **3) Upstream LED lighting discounts in select stores** **4) Insulation and HVAC equipment rebates;** **Estimated savings -- 51,270,492 kWh.** **Weatherization—free energy efficiency improvements for lower-income customers which includes ceiling insulation, general air infiltration improvements, LED lighting installations and performance testing; 2017 savings of 12,519,108 kWh.** **Positive Energy Home—certification for homes that are shown to be 50% more efficient than code; 2017 savings of 3,673,856 kWh.**	These programs will run from 2016 through 2018
OG&E Energy Efficiency Programs-Commercial	OGE Energy Corp.	Ongoing	System wide, OG&E currently projects energy efficiency and demand reductions of up to 549 MW and 1,130 MWh through 2024. **2018 Update: In 2017 Commercial Energy Efficiency Program (CEEP) - total savings of 71,541,185 kWh. Includes:** **1) Commercial HVAC Tune-up and Plenum Seal** **2) C&I HVAC Equipment, Chillers, Air Compressor, motor rebates** **3) Midstream LED lighting discounts at commercial distributors** **4) Schools and Government, HVAC & Lighting rebates and assessments** **5) Small Business direct install measures**	These programs will run from 2016 through 2018

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Paperless Billing	OGE Energy Corp.	Ongoing	OG&E promotes paperless billing to reduce the number of electric bills that must be mailed. Customer Participation: 2012 - 36,882, 2013 - 38,038, 2014 – 48,048. 2015 - 56,358 2016 - 79,161; **2017 - 115,619.**	Continuous
OG&E Wind Power	OGE Energy Corp.	Ongoing	OG&E has 7 Wind farms providing 841 MW of Wind Power to the company, which accounts for approximately 10% of OG&E's generating capacity (MW) and approximately 15% of Oklahoma's power generation (MWh).	Continuous
CNG Fleet Addition	Oklahoma Department of Transportation (ODOT) / Oklahoma Turnpike Authority (OTA)	Ongoing	In the past 3 years, ODOT has replaced 675 of its approximately 1190 light duty vehicle fleet with CNG vehicles. The agency is working toward its goal of 90 percent CNG by the end of 2016. The projected savings realized could be as much as $20,000 over the useful life of each vehicle. OTA currently has 75 CNG fleet vehicles and 8 CNG pool vehicles. Plans are to add another 34 CNG fleet vehicles and 6 pool vehicles this fiscal year, which will bring the total percentage CNG to 75%.	2013-Present
ScienceFest Oklahoma	Oklahoma DEQ OGE Energy Corp Oklahoma Department of Commerce Oklahoma Secretary of Energy and Environment	Ongoing	ScienceFest Oklahoma is an annual education event which brings 2500-5000 4th and 5th grade students to Oklahoma City each spring. ScienceFest is a day-long outing for Oklahoma school children that provides hands-on learning activities focused on the environment, conserving natural resources, and using alternative fuels and technologies. Ozone awareness and air pollution prevention are highlighted as well. **2018 Update: Sciencefest was canceled in May of 2018; however, the next Sciencefest event is planned for Spring 2019.**	2002 - Present
OEC Solar Garden	Oklahoma Electric Cooperative	Ongoing	OEC's 250 KW solar facility, located in Norman between I-35 and N. Flood Avenue, generates solar powered electricity and can be viewed by drivers travelling down the very busy I-35 corridor. Providing lots of potential marketing and promotion of solar energy.	Complete

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Rebate for CNG Vehicles and Home Fueling products	Oklahoma Natural Gas	Ongoing	Currently offering rebates of $2,000 for the purchase of a dedicated or bi-fueled vehicle and $3,000 for the purchase of a residential home-fueling system. The program is expected to continue, with no set cut-off or termination date. In 2014, ONG processed 248 total NGV rebates, which included 158 bi-fuel NGV rebates, 70 dedicated NGV rebates, and 20 home refueling rebates.	Continuous
Alternative Fuel Vehicle (AFV) Tax Credit	State of Oklahoma	Ongoing	For tax years beginning before January 1, 2015, a one-time income tax credit is available for 50% of the incremental cost of a new AFV or converting a vehicle to operate on an alternative fuel. The state also provides a tax credit for 10% of the total vehicle cost, up to $1,500, if the incremental cost of a new AFV cannot be determined or when an AFV is resold, as long as a tax credit has not been previously taken on the vehicle. Equipment used for conversions must be new. The alternative fuels eligible for the credit are compressed natural gas, liquefied natural gas, hydrogen, and liquefied petroleum gas (propane). Tax credits may be carried forward for up to five years. (68 O.S. §2357.22)	1990-Present
Alternative Fueling Infrastructure Tax Credit	State of Oklahoma	Complete	For tax years beginning before January 1, 2015, a tax credit is available for up to 75% of the cost of alternative fueling infrastructure. Eligible alternative fuels include CNG, liquefied natural gas, liquefied petroleum gas (propane), hydrogen, and electricity. The infrastructure must be new. A tax credit is also available for up to 50% of the cost of installing a residential CNG fueling system, for up to $2,500. The tax credit may be carried forward for up to five years. (68 O.S. §2357.22)	2014
Oklahoma First Energy Plan	State of Oklahoma	Ongoing	Oklahoma First Energy Plan lays out policy guidance for a diverse energy portfolio that includes energy efficiency and encourages efficiency technologies such as Combined Heat and Power (CHP) and geothermal.	2011- Present

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Oklahoma State Facilities Energy Conservation Program	State of Oklahoma	Ongoing	During the 2012 legislative session, Oklahoma lawmakers passed SB 1096, which created a conservation program. The law includes a provision that sets forth a goal to target a cumulative energy savings of not less than 20% by the year 2020, when compared with 2012 utility expenditures (27A O.S., §3-4-106.1) **2018 Update: Expenditures were down 27 percent from April 2016 to April 2017.**	2012-2020
Oklahoma State Mandated Energy Efficiency Requirements	State of Oklahoma	Ongoing	61 O.S. § 213, Enacted 6/3/2008, requires the state to develop a high-performance building certification program for state construction and renovation projects; program must meet the certification guidelines of either the LEED system or the Green Globes rating system. The requirement applies to new construction or substantial renovation projects that begin the design phase after July 1, 2008 in buildings larger than 10,000 square feet. "Substantial renovations" is defined as projects that cost in excess of 50% of the value of the facility. In order to be considered a "state project" for purposes of the requirements, state funds or state-insured funds must constitute at least 50% of the project cost. State agencies are directed to meet the highest level of certification attainable under a payback period of 5 years or less. Public schools (K-12) and state archive buildings are exempted from the requirements.	2009 - Present
Private Alternative Fuel Vehicle (AFV) Loans	State of Oklahoma	Ongoing	Private loan program with a 3% interest rate for the cost of converting private fleets to operate on alternative fuels, for the cost of purchasing an original equipment manufacturer AFV, and for the installation of AFV fueling infrastructure. Maximum repayment period is six-years.	1990-Present

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
The Oklahoma Energy Security Act	State of Oklahoma	Ongoing	Established state wide goals (O.S. 17, Section 801.1 et seq.) for alternative and domestically produced energy, including: 15% of energy from renewables by 2015, and CNG fueling stations every 100 miles by 2015 and every 50 miles by 2025.	Present - 2025
Emergency and Transportation Revolving Fund	State of Oklahoma	Ongoing	SB 656 (2015) allows counties to apply for no-interest loans, for a maximum of 5 years, for the purchase of CNG vehicles or the conversion of existing fleet vehicles to CNG.	2015- Present
Energy Efficiency	Tinker Air Force Base	New	Currently implementing third Energy Saving Performance Contact (ESPC) task order 3 with investment of $243 million toward Energy Conservation Measures (ECM). Energy reductions will be achieved through boiler plant improvements, building automation systems, building envelope, and lighting improvements. Target energy reduction goal is 23%.	Ongoing
Water Reduction Measures	Tinker Air Force Base	New	Tinker AFB will realize water savings through the following ECMs including decentralizing large boiler plants, replacing or discontinuing the use of aging steam lines, use of flow restrictors on valves/faucets and installing low flow fixtures. Target base wide water reduction is 2% annually.	Ongoing

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Natural Gas Reductions	Tinker Air Force Base	New	The Tinker AFB ESPC task order 3 is decentralizing steam consumption by shutting down large steam boilers and replacing them with high efficient hot water heating or high efficiently natural gas fired heating units.	Ongoing
Fleet Electrification	Tinker Air Force Base	New	Tinker has developed a multi-year plan to convert a portion of the government owned fleet vehicles to electric (EV) and plug-in hybrid vehicles (PHEV). The base is currently in the design phase of its first set charging stations to provide charging infrastructure for these future vehicles. A new PHEV minivan has been acquired.	Ongoing
Bike Share	Tinker Air Force Base	New	Tinker AFB installed its first bike sharing hub of eight (8) bikes in partnership with Gotcha Bike. These bikes are primarily provided to Airmen (living on base) as an alternative to car ownership, but are open to the base populous as a whole. It is anticipated that additional hubs will be installed in the future to support one-way travel.	Ongoing
Environmental Protection Agency College and University Green Power Challenge	University of Central Oklahoma	Ongoing	For six consecutive years, the Environmental Protection Agency ranked the University of Central Oklahoma (UCO) first among schools in the Mid-American Intercollegiate Athletics Association and 23rd among 33 collegiate conferences and 78 schools overall. UCO uses 26 million kilowatt-hours of wind power annually and has on-site biodiesel productions.	2010 - 2016 / Complete
Recycling	University of Oklahoma	Ongoing	The University meters electricity, natural gas, steam, chilled water, domestic (potable) water and untreated well water. The University initiated metering improvement plans in 2012 to improve the metering infrastructure on campus. Meters on the electric distribution system were upgraded to smart meters with an automated metering infrastructure in 2013. The University is currently in the final stage of installing smart chilled water meters and smart steam meters. The University has plans to upgrade domestic water metering in 2017/2018 and natural gas metering in 2019. Metering data is collected, recorded and analyzed to form the basis of energy efficiency improvements and other capital expenditures to reduce utility usage. The scope of the metering improvement plan has recently been expanded to invest in a web-based platform which will collect real-time meter data, giving better insight to building and utility system demand.	Ongoing

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
Metering	University of Oklahoma	New	The University meters electricity, natural gas, steam, chilled water, domestic (potable) water, and untreated well water. The University initiated metering improvement plans in 2012 to improve the metering infrastructure on campus. Meters on the electric distribution system were upgraded to smart meters with an automated metering infrastructure in 2013. The University is currently in the final stage of installing smart chilled water meters and smart steam meters. The University has plans to upgrade domestic water metering in 2017/2018 and natural gas metering in 2019. Metering data is collected, recorded, and analyzed to form the basis of energy efficiency improvements and other capital expenditures to reduce utility usage. The scope of the metering improvement plan has recently been expanded to invest in a web-based platform which will collect real-time meter data, giving better insight to building and utility system demand.	Ongoing
Building Automation	University of Oklahoma	Ongoing	The campus implemented a building automation system (BAS) to provide higher levels of comfort and productivity, while reducing energy consumption, emissions, and operating expenses. Of the approximate 10.6 million square footage of the Norman campus, 83.98% is operated by the building automation system. The BAS establishes temperature and time parameters for HVAC systems. During occupied hours, temperature settings are established to maintain energy management goals. Additionally, buildings are scheduled to follow default heating and cooling settings during unoccupied time periods. During unoccupied time periods, temperatures are allowed to cool to 55 degrees in the winter, and allowed to rise to 80 degrees in the summer.	Ongoing
Energy Management: Energy Upgrades & Retrofits	University of Oklahoma	New	• LED Lighting - Existing lighting has been retrofitted to LEDs at the Union Parking Facility, the lower level of the Elm Street Parking Facility, Jones Art Center, Carpenter Hall, Sam Noble Museum, and Printing Services. Recently, LED fixtures were chosen for 35 newly installed street lights along Asp Avenue. Moving forward, new street lights will be LED fixtures. • HVAC Improvements - Recently, heating and cooling systems have been replaced at McCarter Hall, Kraettli Apartments, Telecomm Maintenance Facility, Fine Arts Center, Union, Buchanan Hall, and others. • Exterior Lighting Replacements - Without affecting overall light level or lamppost design, the installation of new light bulbs reduces total wattage by 50 percent. • Interior Lighting Retrofits -- By installing more efficient ballast, lower wattage light bulb and occupancy sensors, major campus energy reductions will result. • Vending Machine Mizers - Motion detectors on vending machines will eliminate constant product lighting, instead of using electricity 24 hours a day. • HVAC Improvements - Recently, heating and cooling systems have been replaced at McCarter Hall, Kraettli Apartments, Telecomm Maintenance Facility, Fine Arts Center, Union, Buchanan Hall, and others.	Complete

Ozone Advance Emission Reduction Projects - Oklahoma City MSA

Progress Report 6-1-17 through 5-31-18

Emission Reduction Projects	Entity	Status	Description	Schedule/Completion Dates
OU Spirit Wind Farm	University of Oklahoma	Complete	In 2008, the University signed a historic agreement with Oklahoma Gas & Electric Company (OG&E) to acquire 100% of our purchased electricity from renewable energy sources by 2013. This project was instrumental in enabling OG&E to build the OU Spirit Wind Farm – along with the required transmission lines to the grid – in northwestern Oklahoma. The 101 megawatt "OU Spirit" wind farm features 44 2.3 MW turbines. **2018 Update: Since entering into a power purchase program with OG&E, the university has purchased over 900,000,000 kwh of renewable energy. Doing so has helped to reduce emissions by more than 50%, compared to 2008 baseline emissions, and abated more than 670,000 metric tons of carbon dioxide equivalent emissions from entering into the atmosphere.**	February 2013