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Texas Emissions Reduction Plan Biennial Report (2015-2016)

A Report to the 85th Texas Legislature

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Prepared by
Air Quality Division

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Summary

Texas Emissions Reduction Plan

This seventh Texas Emissions Reduction Plan (TERP) biennial report is produced by the Texas Commission on Environmental Quality (TCEQ) in fulfillment of the requirements of Texas Health and Safety Code (THSC) 386.057 and 386.116(d).

The TERP was established under THSC Chapter 386 by the 77th Texas Legislature in 2001, through the enactment of Senate Bill (SB) 5. Under THSC 386.052(b) the statutory objectives of the TERP include:

1. achieving maximum reductions in nitrogen oxides (NO_x) to demonstrate compliance with the Texas State Implementation Plan (SIP);
2. preventing areas of the state from being in violation of National Ambient Air Quality Standards (NAAQS) established by the United States Environmental Protection Agency (EPA) under authority of the Federal Clean Air Act (FCAA);
3. achieving cost-saving and multiple benefits by reducing emissions of other pollutants;
4. achieving reductions of emissions of diesel exhaust from school buses; and
5. advancing technologies that reduce NO_x and other emissions from facilities and other stationary sources.

Lowering NO_x emissions from TERP-eligible sources remains an important strategy for the SIP, which details how the state will meet the FCAA requirements.

Since 2011, the TERP has also included programs to support increased use of alternative fuels for transportation in Texas.

Revenue and Funding

The TERP is funded from fees and surcharges on obtaining a certificate of vehicle title for all vehicles, purchase or lease of heavy-duty vehicles and equipment, and registration and inspection of commercial vehicles. Revenue into the TERP Fund Fiscal Year (FY) 2016 through 2017 biennium is projected to be \$427,029,079. Biennial appropriations and statutorily-required transfers and deductions from the TERP Fund are expected to be \$241,098,555, including \$236,263,007 appropriated to the TCEQ to fund TERP grant programs and administer those programs.

The unexpended balance in the TERP Fund at the end of the FY 2014 – 2015 biennium was \$995,010,900. The balance at the end of the FY 2016 – 2017 biennium is projected to reach \$1,180,941,423.

Program Highlights

The TERP includes incentive funding for a variety of programs. The primary TERP grant program continues to provide grants to reduce NO_x emissions from mobile sources in the state's nonattainment areas and areas of concern. Other programs include funding for natural gas vehicles and other alternative fuel vehicles, and infrastructure to provide fuel for those vehicles. The TERP also includes funding to reduce emissions from school buses.

Through the TERP, the TCEQ also provides funding for new technologies to reduce emissions from certain stationary facilities and funding for air monitoring in the North Texas region. In addition, energy efficiency programs established under the TERP continue to help the state reduce energy use and the associated energy-related emissions in a growing and robust economy.

Some of the key program highlights from the implementation of each program through FY 2016 are provided below.

- Since 2001, the **Diesel Emissions Reduction Incentive Program** has provided over \$1 billion to replace or upgrade over 17,629 vehicles and pieces of equipment, resulting in a reduction of 171,945 tons of NO_x in the nonattainment areas and other areas of concern. This program is implemented through several grant programs: Emissions Reduction Incentive Grants Program; Rebate Grants Program; Small Business Grants Program; and Third-Party Grant Program.
- The **Texas Clean Fleet Program, implemented in 2009**, and **Texas Natural Gas Vehicle Grant Program, implemented in 2011**, have together provided nearly \$83 million to replace or upgrade existing vehicles with 905 medium and heavy-duty vehicles powered by compressed natural gas (CNG), 251 vehicles powered by liquefied petroleum gas (LPG), 147 vehicles powered by Liquid Natural Gas (LNG), and 132 hybrid vehicles. These projects are projected to result in a reduction of more than 2,000 tons of NO_x in the areas designated for operation of the vehicles under these programs.
- The new **Drayage Truck Incentive Program was implemented in 2014**, and has awarded \$3.9 million to replace 47 drayage trucks operating at seaports and railyards located in nonattainment areas, including 37 drayage trucks in the Houston-Galveston-Brazoria area and 10 in the Dallas-Fort Worth area.
- To ensure the availability of fuel for alternative fuel vehicles, the **Alternative Fueling Facilities Program** and the **Clean Transportation Triangle Program, also established in 2011**, have provided over \$24 million to establish or upgrade 103 natural gas or alternative fueling facilities, including 55 stations providing natural gas, 41 electric charging stations, one natural gas and electric charging station, five stations providing liquid propane gas, and one biodiesel station.

- More than \$33 million has been awarded under the **Texas Clean School Bus Program since 2005**, including \$28.3 million in TERP funds and \$4.7 million in federal funds for the retrofit of 7,497 buses in Texas with systems to control the emissions of diesel particulate matter in and around the buses.
- The **New Technology Implementation Grants Program, established in 2009**, has awarded \$9.8 million through FY 2016 for projects with potential to reduce emissions, either through incorporating advanced technologies to store and use energy, or from switching certain industrial operations from reliance on bunker fuels to natural gas.
- The TERP-funded **Regional Air Monitoring Program** established 21 new air monitoring sites in 2012 and 2013 in the North Texas area using \$5.3 million under a contract with the North Texas Commission.
- The **Light-Duty Motor Vehicle Purchase or Lease Incentive Program** was implemented in 2013 and expired on August 31, 2015. Through FY 2015, \$4,656,250 in rebates were provided for the purchase of light-duty alternative fuel vehicles, including 1,896 plug-in electric vehicles and 196 vehicles powered by natural gas.

I. Overview

The Texas Emissions Reduction Plan (TERP) was established by Senate Bill (SB) 5, 77th Texas Legislature, Regular Session, in 2001 under Texas Health and Safety Code (THSC) Chapter 386. Subsequent updates and changes have been made to the TERP to ensure effectiveness in meeting program objectives and to address new priorities.

Under THSC 386.052(b) the statutory objectives of the TERP include:

1. achieving maximum reductions in nitrogen oxides (NO_x) to demonstrate compliance with the Texas State Implementation Plan (SIP);
2. preventing areas of the state from being in violation of National Ambient Air Quality Standards established by the United States Environmental Protection Agency (EPA) under authority of the Federal Clean Air Act (FCAA);
3. achieving cost-saving and multiple benefits by reducing emissions of other pollutants;
4. achieving reductions of emissions of diesel exhaust from school buses; and
5. advancing technologies that reduce NO_x and other emissions from facilities and other stationary sources.

Since 2011, the TERP also includes programs to support increased use of alternative fuel for transportation in Texas.

Since NO_x is a primary precursor to the formation of ground-level ozone, the TERP targets areas in Texas designated as nonattainment for ground-level ozone under the FCAA, as well as other areas of concern for ozone issues. Lowering NO_x emissions from TERP-eligible sources remains an important component of the SIP, which details how the state will meet FCAA requirements.

The TERP is currently comprised of the following incentive grant programs:

- Diesel Emissions Reduction Incentive (DERI) Program
- Texas Clean Fleet Program (TCFP)
- Texas Natural Gas Vehicle Grant Program (TNGVGP)
- Drayage Truck Incentive Program (DTIP)
- Clean Transportation Triangle (CTT) Grant Program
- Alternative Fueling Facilities (AFFP) Program
- Texas Clean School Bus Program (TCSB)
- New Technology Implementation Grants (NTIG) Program
- Light-Duty Motor Vehicle Purchase or Lease Incentive (LDPLI) Program (Expired August 31, 2015).

Additional TERP programs include:

- Energy Efficiency Programs
 - Goal for Energy Efficiency
 - Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities
 - Texas Building Energy Performance Standards
- Regional Air Monitoring Program
- Health Effects Study
- Air Quality Research Support Program

The TERP Advisory Board, a 15-member body created under THSC 386.058, assists the TCEQ in administering the TERP. Five members each are appointed by the governor, lieutenant governor, and speaker of the House of Representatives. The Board also includes seven ex officio members. A list of members is included in Appendix 1, *TERP Advisory Board Members*.

Subsequent sections explain the status of the TERP programs.

II. Funding

Texas Emissions Reduction Plan Fund

The TERP is funded from revenue deposited to the TERP Fund established under THSC 386.251 as an account in the State treasury. The revenue going to the TERP Fund comes from the fees and surcharges listed below.

- Tax Code 151.0515(b): A 1.5% surcharge on the sale price or lease/rental amount of off-road diesel equipment sold, rented, or leased (a surcharge is also applied to the storage, use, or the consumption of this equipment in Texas).
- Tax Code 152.0215(a): A 2.5% surcharge of the total consideration on sale or lease of model year pre-1997 on-road diesel vehicles over 14,000 pounds and a 1% surcharge for vehicle model year 1997 and newer.
- Texas Transportation Code 502.358: A 10% surcharge of the total fees due for the registration of truck-tractors and commercial motor vehicles.
- Texas Transportation Code 501.138(a): A portion of the vehicle certificate of title fee, \$20 out of the \$33 fee for applicants in the nonattainment counties and affected counties and \$15 out of the \$28 fee for applicants in all other counties; and
- Texas Transportation Code 548.5055: A \$10 fee on commercial motor vehicles required to have an annual safety inspection.

Use of the revenue received into the TERP Fund is authorized through appropriation by the Texas Legislature and other statutorily-directed deductions from the Fund. Revenue into the TERP Fund Fiscal Year (FY) 2016 through 2017 biennium is projected to be \$427,029,079. The revenue received into, and the appropriation from the TERP Fund, are listed in Appendix 2, *TERP Fund*.

Funds Allocation

The TCEQ was appropriated \$118,124,844 in FY 2016 and \$118,138,163 in FY 2017 to implement and administer the TERP programs. The allocation of appropriated amounts from the TERP Fund is set forth in THSC 386.252. The allocated amounts for FY 2016 and 2017 are listed in Appendix 3, *TERP Funding Allocation*.

Money is also appropriated by the Texas Legislature directly to the Energy Systems Laboratory (ESL) of the Texas A&M Engineering Experiment Station, Texas A&M University System, for administrative costs associated with evaluating energy efficiency programs established under the TERP.

Notwithstanding the allocation formula in THSC 386.352, the legislative appropriations under the State Appropriations Act dictate the specific funding amounts that may be used and how those funds are allocated. In addition, the TCEQ may reallocate some of the funds among the TERP programs, subject to certain limitations.

III. Program Accomplishments

Since the establishment of the TERP in 2001, the plan has been updated and enhanced several times to address legislative priorities and the air quality issues facing the state. Changes and additions to the TERP have since increased its role in encouraging use of alternative fuels for transportation in Texas and to support new and innovative technologies for reduction of emissions from stationary facilities. The TCEQ continues to conduct outreach through program workshops and application training sessions in targeted areas across the state, as well as through participation in related transportation industry and air-quality focused events.

Grants to Reduce NO_x Emissions from Vehicles and Equipment

Diesel Emissions Reduction Incentive (DERI) Program

The DERI program is managed by the TCEQ and provides grants to fund projects in the 42 DERI-eligible counties, including counties designated nonattainment (see Appendix 4, *Texas Nonattainment Area Counties*) and other affected counties. A map of the DERI-eligible counties is provided in Appendix 5, *Diesel Emissions Reduction Incentive Program Counties*. The DERI Program encompasses several associated grant programs.

A summary by area of grants awarded under these programs from 2001 through August 31, 2016, is provided in Appendix 6, *DERI Program Projects by Area*. Appendix 7, *DERI Program Projects by Emissions Source*, summarizes these grants by emission source. A complete list of the individual grant awards is available on the TERP website at <www.terpgrants.org>.

From 2001 through FY 2016, 10,698 projects under all DERI grant categories were either active or completed at the end of FY 2016, for a total of \$1,013,259,223. These projects are projected to reduce NO_x emissions by 171,945 tons, at an average cost per ton of \$5,893. Of these totals, \$12.5 million in federal American Recovery and Reinvestment Act (ARRA) funding was awarded in 2010 through the DERI Rebate program, with 1,324 tons of NO_x reduced. These totals do not include grants awarded and subsequently canceled.

Per THSC 386.106, grants were previously limited to projects that did not exceed a cost-effectiveness limit of \$15,000 per ton of NO_x emissions reduced. The TCEQ had the authority to set cost-per-ton-limits lower than the maximum amount authorized in the statute. For each grant round, the TCEQ established a maximum cost per ton for eligible activities that was less than the statutorily-authorized maximum. From FY 2007 to 2013, the cost per ton limits were set at \$5,000 per ton of NO_x reduced for marine and locomotive projects and \$10,000 per ton of NO_x reduced for all other projects.

Changes made in 2013 by Senate Bill (SB) 1727, 83rd Texas Legislature, Regular Session, removed the \$15,000 per ton statutory cap on the cost-effectiveness of a project. Beginning with the FY 2015 grant rounds, the cost per ton limits have been set by the TCEQ at \$10,000 per ton of NO_x reduced for marine and locomotive projects and \$15,000 per ton of NO_x reduced for all other projects. The increase in the maximum cost per ton will help ensure continued participation in the programs as the most cost-effective projects grants are awarded and less cost-effective projects are available. Therefore, the TCEQ expects the average cost per ton of NO_x reduced in future grant rounds to increase from the historical averages for the program.

To illustrate this, the FY 2014 through FY 2016 grant rounds funded 1,228 projects for a total of \$137,600,199, with projected NO_x reductions of 15,716 tons at an average cost per ton of \$8,756. Because locomotive and marine projects, which generally have a lower average cost per ton than other categories, were excluded from the FY 2016 grant round, this average cost per ton figure may be higher than what can be expected when the FY 2017 funds are awarded. However, the TCEQ estimates that the cost per ton of projects funded over the next several years will still be higher than previous grant rounds.

The emissions reductions presented are projections based on the emissions reduction calculations for the grant projects. The projections are continually updated to account for newly-awarded projects and changes to existing projects. However, not all projects will be finally implemented and the actual emissions reductions achieved by the projects that are implemented may be lower than the projections. The timing on when the emissions reductions are achieved may also be delayed as grantees begin operating grant-funded equipment later than the dates used to determine the original projections.

On average, grantees have reported achieving at least 85% of the annual commitments for use of the grant-funded vehicles and equipment for DERI grant projects that were active and subject to reporting during 2016. The TCEQ considers an achievement rate of 80% or higher to be a success, given the uncertainties with projecting future use over a five to seven year period, or longer, when the grants are awarded.

The status of each DERI grant program is explained below.

Emissions Reduction Incentive Grants (ERIG) Program

Eligible projects under the ERIG Program may include new purchases and leases, replacements, repowers, retrofit technologies, infrastructure, qualifying fuels, and rail relocation and improvement. Eligible emission sources include heavy-duty on-road vehicles, non-road equipment, marine vessels, locomotives, and certain stationary engines.

In FY 2016, \$50.6 million in reimbursement grants were awarded to 545 projects under the ERIG program. Since the program was first implemented in 2001, \$778,571,943 has been awarded to 4,438 projects. These projects are projected to reduce NO_x emissions by about 142,647 tons at a cost of \$5,458 per ton of NO_x reduced.

A new ERIG application period opened in November 2016, with an application deadline in January 2016, with \$51.7 million in available funds. A list of the grant awards will be available on the TERP website at <www.terpgrants.org>.

Rebate Grants Program

In 2006, the TCEQ initiated a Rebate Grants Program to implement a portion of the TERP as authorized under THSC 386.117. The purpose of this program is to provide a streamlined and simplified process for submission and approval of grant applications and contracting.

Activities eligible for a rebate grant are intended to reduce NO_x emissions in the designated 42 TERP-eligible counties from on-road heavy-duty diesel vehicles and non-road diesel equipment. Rebate grants have been based on pre-approved maximum rebate grant amounts for eligible on-road and non-road replacement and repower projects.

Since the program was first implemented in 2006, \$169,198,132 million has been awarded to 2,671 projects. These projects are projected to reduce NO_x emissions by about 20,604 tons, at a cost of \$8,212 per ton of NO_x reduced. Of these totals, \$12.5 million in federal ARRA funding was awarded in 2010, with 1,324 tons of NO_x reduced.

The TCEQ anticipates opening a new application period in early 2017, once the grant application period closes for the latest ERIG application period. The TCEQ will allocate remaining FY 2016-2017 funds, expected to be over \$20 million, to this program. A list of the grant awards will be available on the TERP website at <www.terpgrants.org>.

Small Business Grants Program

The Small Business Grants Program targets small businesses and other entities that own and operate no more than two vehicles or pieces of equipment, or a combination of the two, one of which must be diesel-powered and a pre-1994 model year vehicle or non-road equipment with “uncontrolled emissions” as defined in THSC 386.116. The program was first established in FY 2004.

The program is streamlined for small businesses in the 42 TERP-eligible counties to apply for financial assistance to replace or repower vehicles or equipment, via a simplified application process. The TCEQ has incorporated the small business grants into the Rebate Grants Program.

Of the small business rebate grants awarded under the Rebate Grants Program 884 small business projects were either active or completed by the end of FY 2016. These grants total \$59,729,656, and are projected to reduce NO_x emissions by approximately 7,878 tons, at a cost per ton of \$7,582.

Third-Party Grant Program

The TCEQ has awarded eight third-party grant contracts to four grantees to assist with the implementation of TERP projects in the TERP-eligible areas: the Railroad Commission of Texas to fund propane and natural gas vehicles and equipment projects; the North Central Texas Council of Governments to fund various TERP projects, including refuse haulers; the Houston-Galveston Area Council to fund local government and commercial TERP projects, including projects to replace vehicles operating at or near the ports; and the Texas General Land Office to fund natural gas vehicle and equipment projects.

There are no current Third-Party grants in effect, although the previous grantees are expected to continue to monitor the sub-grant projects over the life of those projects.

Through FY 2016, there were 3,589 third-party sub-grants, totaling \$65,489,149, that were active or completed. These sub-grants are projected to reduce NO_x emissions by 8,694 tons, at a cost per ton of \$7,532.

Texas Clean Fleet Program (TCFP)

The TCFP provides grants to owners of at least 75 vehicles in Texas to replace a minimum of 20 diesel vehicles with new alternative-fuel or hybrid vehicles. Under the program, alternative fuels include: compressed natural gas (CNG), liquefied natural gas (LNG), liquefied petroleum gas (LPG), hydrogen, methanol (85 % by volume), and electricity.

The TCFP may be implemented statewide. For the recent grant rounds, the TCEQ set the eligible counties for the TCFP to be consistent with the counties eligible under the Texas Natural Gas Vehicle Grant Program, which includes the counties designated under the Clean Transportation Triangle. A map of those counties is included in Appendix 8, *Clean Transportation Triangle Counties*.

Through FY 2016, the TCEQ awarded 20 TCFP grants to replace 472 vehicles, for a total of \$38,813,889. These included 148 CNG vehicles, 251 LPG vehicles and 73 diesel hybrid vehicles. These grants are projected to reduce about 498 tons of NO_x over the five-year life of the projects, for an average cost per ton of NO_x reduced of \$77,998.

A summary by area and fuel type of grants awarded under the TCFP from 2009 through August 31, 2016, is provided in Appendix 9, *TCFP Projects by Area and Fuel Type*.

The latest application period opened in August 2016 and closed in November 2016, with an available funding amount of \$5.9 million. A complete list of the individual grant awards is available on the TERP website at <www.terpgrants.org>.

Texas Natural Gas Vehicle Grant Program (TNGVGP)

The TNGVGP provides grants for projects to replace or repower existing heavy-duty and medium-duty vehicles with natural gas vehicles and engines. Grant-funded vehicles must operate at least 75% of annual use in one or more of the counties designated under the Clean Transportation Triangle Program. Those counties are shown in Appendix 8, *Clean Transportation Triangle Counties*.

From the beginning of the program in FY 2012 through FY 2016, the TCEQ awarded 103 TNGVGP grants to replace 963 vehicles, for a total of \$44,049,488. The grants included 757 CNG vehicles, 147 LNG vehicles, and 59 vehicles powered by LNG with diesel used for ignition of the fuel. These grants are projected to reduce about 1,573 tons of NO_x over the four-year life of the projects, for an average cost per ton of NO_x reduced of \$28,006. These totals include six projects awarded grants in FY 2016, to replace 57 vehicles for a total of \$1.9 million.

A summary by area and fuel type of grants awarded under the TNGVGP from 2009 through August 31, 2016, is provided in Appendix 10, *TNGVGP Projects by Area and Fuel Type*.

The latest grant application period was scheduled to remain open through May 2017 to award the remaining \$35.9 million from the FY 2016 – 2017 allocation. A complete list of the individual grant awards is available on the TERP website at <www.terpgrants.org>.

Drayage Truck Incentive Program (DTIP)

The DTIP was established by SB 1727 in 2013 to fund the replacement of drayage trucks operating at seaports and rail yards in the state's nonattainment areas (see Appendix 5, *Texas Nonattainment Area Counties*). Also, at least 50% of the annual mileage of the grant-funded vehicles must occur in the counties eligible under the DERI Program (see Appendix 5, *Diesel Emissions Reduction Incentive Program Counties*).

In many cases, vehicles used for drayage are older, higher-polluting vehicles that were previously used for long-haul operations. The concentration of these vehicles operating at seaports and rail yards warranted the establishment of a separate program specifically for replacement of older drayage trucks with newer, less-polluting models.

The rules for this program were adopted on April 9, 2014, and program guidelines were adopted on August 30, 2014. The initial grant application period opened September 2014 through January 2015. The TCEQ awarded nine grants to replace 47 drayage trucks, for a total of \$3.9 million. These grants are projected to reduce about 233 tons of NO_x over the life of the projects, for an average cost per ton of NO_x reduced of \$16,930. A summary by areas of use of grants awarded under the DTIP from 2014 through August 31, 2016, is provided in Appendix 11, *DTIP Projects by Area*.

New eligibility criteria for the DTIP rules and guidelines were adopted by the TCEQ on August 3, 2016. The newly adopted rule and guideline changes expanded the definition of an eligible seaport or rail yard area, removed the requirement that drayage trucks being purchased have a day cab only, and added non-road cargo handling equipment to as eligible for the program, among other changes, to enhance the program's ability to capture NO_x emissions from relevant sources. The latest application period opened in November 2016 and was expected to close in May 2017, with an available funding amount of \$4.7 million. A complete list of the individual grant awards is available on the TERP website at <www.terpgrants.org>.

Grants to Provide Alternative Fuels for Transportation

Clean Transportation Triangle (CTT) Grant Program

The CTT was established in 2012 to provide grants for natural gas fueling stations along interstate highways between the Houston, Dallas, Fort Worth, and San Antonio areas.

In 2013, SB 1727 amended the areas eligible under the CTT to include counties located within the triangular area between the previously designated interstate highways and counties included in the Texas nonattainment areas and other TERP affected counties. A map of the eligible counties is provided in Appendix 8, *Clean Transportation Triangle Counties*.

From FY 2012 through FY 2016, the TCEQ awarded 34 grants for projects under the CTT program, for a total of \$11,608,239. These projects included 24 CNG facilities and 10 facilities providing CNG and LNG.

The latest CTT grant round was open in conjunction with the AFFP program from August 8, 2016 to November 8, 2016, with \$5.9 million in available funds. Grant contracts were expected to be finalized in early 2017. A complete list of the individual grant awards will be available on the TERP website at <www.terpgrants.org>.

Alternative Fueling Facilities (AFFP) Program

The AFFP provides grants in Texas nonattainment areas (see Appendix 4, *Texas Nonattainment Area Counties*) for the construction, reconstruction, or acquisition of facilities to store, compress, or dispense alternative fuel. Under the program, alternative fuels include: CNG, LNG, LPG, biodiesel, hydrogen, methanol (85 percent by volume), and electricity.

From FY 2012 through FY 2016, the TCEQ awarded 69 grants for projects under the AFFP, for a total of \$12,832,770. These projects included:

- 1 Biodiesel facility
- 20 CNG facilities
- 1 CNG and Electric Charging facility
- 1 CNG and LNG facility
- 41 Electric Charging stations
- 5 LPG facilities

The latest AFFP grant round was open in conjunction with the CTT program from August 8, 2016 to November 8, 2016, with \$5.9 million in available funds. Grant contracts were expected to be finalized in early 2017. A list of individual grant awards will be available on the TERP website at <www.terpgrants.org>.

Other Grants to Reduce Vehicle Emissions

Texas Clean School Bus (TCSB) Program

The TCSB Program is designed to reduce diesel exhaust emissions inside and around school buses throughout the state. Eligible projects may involve emissions-reducing add-on equipment and other applications such as closed-crankcase filtration systems, and diesel particulate filters or diesel oxidation catalysts on engine model years 1998 and older.

From FY 2005 through FY 2016, the TCEQ funded the retrofit of 7,497 school buses, for a total funding amount of \$33,013,079, including \$28,318,977 in state TERP funds and \$4,694,101 in federal funds awarded by the EPA under the State Clean Diesel Program and other federal programs.

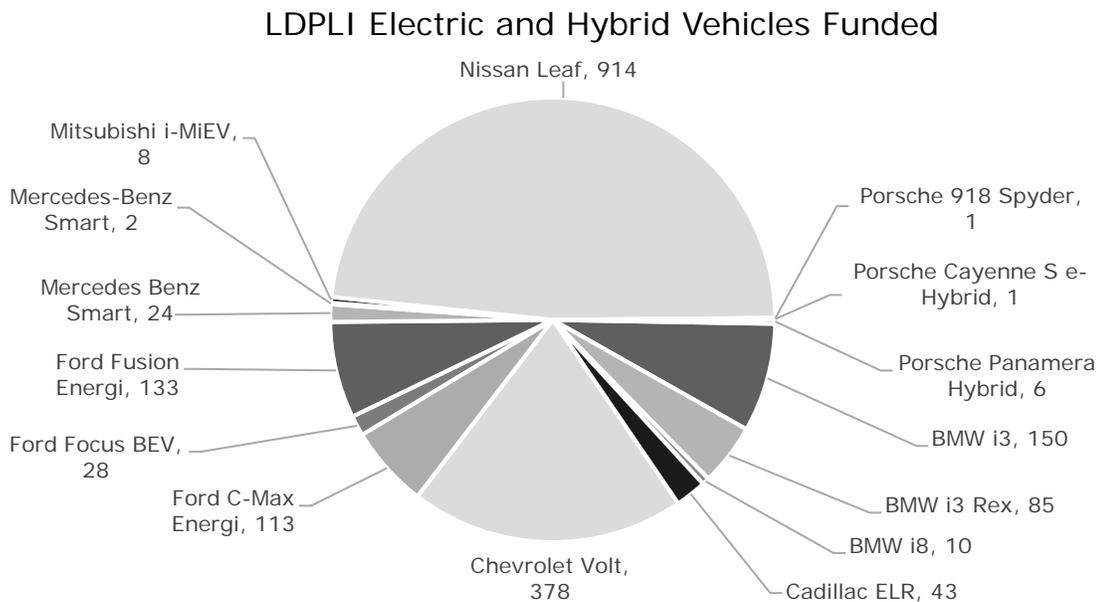
The latest TCSB grant round was open from August 8, 2016, to November 8, 2016, with \$5.9 million in available funds. A complete list of the school districts awarded grant funding is provided on the TERP website at <www.terpgrants.org>.

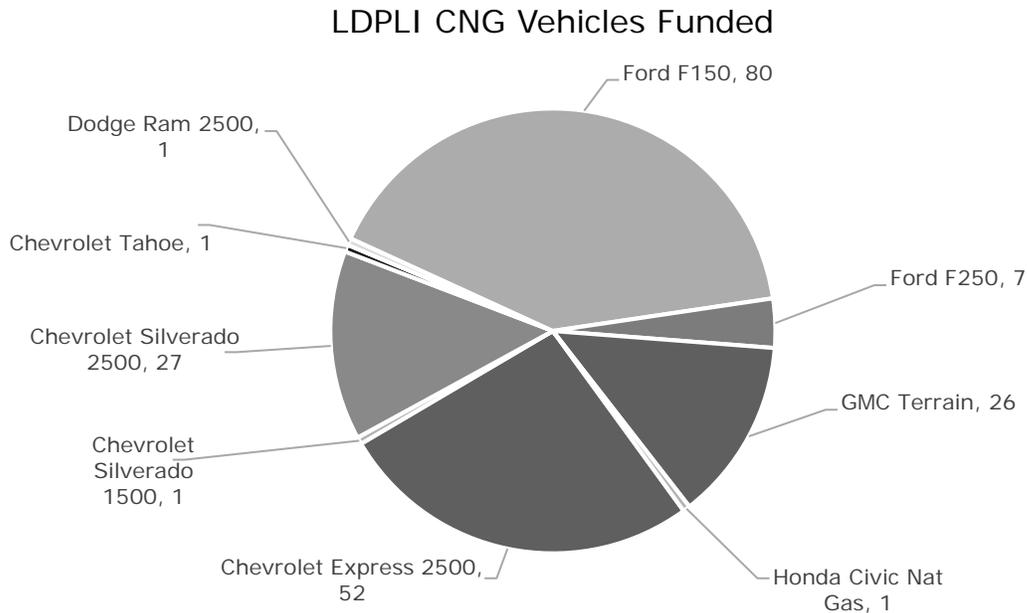
Light-Duty Motor Vehicle Purchase or Lease Incentive Program (LDPLI)

The LDPLI was originally established under SB 5 in 2001 to provide grant funding for the purchase of new light-duty vehicles weighing less than 10,000 pounds that met certain low-emission standards under the EPA light-duty vehicle requirements. The rebates were to be administered by the Texas Comptroller of Public Accounts (CPA) with guidelines established by the TCEQ. However, sufficient revenue was not received for the CPA to begin implementation of the program in FY 2002. Beginning in FY 2003, the legislature did not appropriate funds for this program.

In 2013, SB 1727 revised the program to provide up to \$2,500 in grant funding for the purchase or lease of a new light-duty vehicle that operates on natural gas, liquefied petroleum gas, or electricity. Rules for the LDPLI were adopted on April 30, 2014, and the grant application period was opened from May 13, 2014 through June 26, 2015. The statutory authorization for the program expired August 31, 2015.

In the FY 2014-2015 biennium the program provided a total of \$ \$4,656,250 for the purchase or lease of 2,092 vehicles, including \$4,170,000 in rebates for 1,896 electric and plug-in electric hybrid vehicles and \$486,250 in rebates for 196 natural gas vehicles. The charts below show the vehicles funded through August 31, 2015, by fuel type and vehicle model.





Programs to Encourage Energy Efficiency

Energy Efficiency Programs

Under THSC 386.057, the TCEQ is to include information in this report regarding the effectiveness of certain energy efficiency programs in avoiding and reducing emissions. These programs include:

- Goal for Energy Efficiency, established under the Texas Utilities Code (TUC) 39.905;
- Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities, established under THSC 388.005; and
- Texas Building Energy Performance Standards, established under THSC 388.003.

Goal for Energy Efficiency

Electric utilities are required to establish and administer energy efficiency programs. Under rules adopted by the Public Utility Commission (PUC), electric utilities are required to acquire energy efficiency savings through the administration of standard offer programs, market transformation programs, pilot programs, and in some cases self-directed programs.

The PUC rules establish a savings goal for electric utilities of 30% of growth in demand and a goal to reduce four-tenths of 1 % of summer weather-adjusted peak demand in subsequent years once the utility reaches the 30% goal. The PUC provides information on these programs to the Energy Systems Laboratory (ESL), at the Texas A&M Engineering Experiment Station of the Texas A&M University System, to assess the emissions reductions achieved through these programs.

Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities

Political subdivisions, institutions of higher education, and state agencies located in nonattainment areas or affected counties, are required to establish a goal to reduce the electric consumption by the entity by at least 5% each state fiscal year for 10 years, beginning October 1, 2011.

These entities are also required to implement energy efficiency measures that meet the standards established for a contract for energy conservation measures under Local Government Code 302.004(b) in order to reduce electricity consumption by the existing facilities of the entity. The entities are required to report to the State Energy Conservation Office (SECO) within the CPA on the implementation of these requirements. SECO provides the information to the ESL to assess the emissions reductions achieved through these programs.

Texas Building Energy Performance Standards

These provisions adopt the energy efficiency chapter of the International Residential Code to achieve energy conservation in single-family residential construction and the International Energy Conservation Code to achieve energy conservation in all other residential, commercial, and industrial construction. Local governments have the responsibility to administer and enforce the standards found in the International Energy Conservation Code and the Energy Efficiency chapter of the International Residential Code. The ESL is responsible for determining the energy savings from energy code adoption and, when applicable, from more stringent or above-code performance ratings.

Effectiveness of Energy-Efficiency and Renewable Energy Programs

The ESL compiles the information on energy-efficiency programs and assesses the annual electricity savings and annual NO_x emissions reductions that can be attributed to those savings. In addition to the programs explained above, under THSC 386.252(a)(14) the TCEQ contracts with the ESL for the development of annual computation of statewide emissions reductions obtained through wind and renewable energy resources. The ESL has also assessed the electricity savings from residential air conditioner replacements, assuming that air conditioners in existing homes are replaced with more efficient Seasonal Energy Efficiency Ratio (SEER) 13 units, versus an average of SEER 11.

The ESL prepares a report of integrated annual electricity savings and total NO_x emissions reductions from these programs entitled *Energy Efficiency/Renewable Energy Impact in the Texas Emissions Reduction Plan (TERP)*. The ESL reports are available from the ESL website at <<http://esl.tamu.edu/terp/reports>>. A link to the reports is also provided on the TERP website at <www.terpgrants.org>.

The latest ESL report (ESL-TR-15-11-03) was published in November 2015 for the period January 2014 through December 2014. The next update is anticipated to be published by the end of 2016 and will be available on the ESL website.

The tables below provide information from the 2015 ESL report on total annual electricity savings in megawatt hours per year (MWh/year) and the ESL's calculated annual NO_x emissions reductions from these programs in 2014. The savings and emissions reductions for 2015 are based on ESL's preliminary projections included in the November 2015 report. Updated estimates for 2015 will be available in ESL's next report for January 2015 through December 2015. The estimates of energy savings, renewable generation, and emissions reductions provided by ESL use 2008 as a base year.

Annual Electricity Savings and Wind Generation (2014 and 2015)

Program	2014 (MWh/year)	2015* (MWh/year)
Texas Building Energy Performance Standards	927,408	1,151,214
Goal for Energy Efficiency	2,675,295	3,062,781
Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities	936,047	1,155,485
Renewable Generation - Wind (ERCOT)	18,857,560	19,757,605
Residential Air Conditioner Retrofits	288,118	273,712
Total Integrated Annual Savings	23,684,428	25,400,797

*The 2015 figures are the ESL's projections for through the end of 2015 included in the November 2015 final report.

Annual NO_x Emissions Reductions (2014 and 2015)

Program	2014 Tons of NO_x	2015* Tons of NO_x
Texas Building Energy Performance Standards	233	290
Goal for Energy Efficiency	669	766
Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities	241	296
Renewable Generation - Wind (ERCOT)	5,283	5,535
Residential Air Conditioner Retrofits	68	64
Total Integrated Annual NO_x Emissions Reductions	6,494	6,951

*The 2015 figures are the ESL's projections for through the end of 2015 included in the November 2015 final report.

Energy-Efficiency and Renewable Energy Programs and the Texas SIP

The programs administered by the PUC and SECO under the mandates of the SB 5 (2001) and SB 7 (1999) provide avenues for potentially creditable emission reductions to be claimed in the SIP. Accurate quantification of emissions reductions from energy efficiency and renewable energy (EE/RE) is challenging due to the complex nature of the electrical grid system. It is not possible to determine exactly where on the electrical grid electricity comes from for any certain electrical user. In order to factor in the degree of the complexity of the electrical grid and the uncertainties in the data and methods used, emission reduction estimates are modified using a discounting formula to arrive at the reduction estimates reported in the SIP.

The TCEQ has not specifically claimed creditable NO_x reductions for EE/RE in the SIP since the 2005 Dallas-Fort Worth 5 % Increment of Progress SIP Revision. The current guidance provided by the EPA for claiming emission reductions from EE/RE presents additional challenges for taking direct credit for EE/RE measures in areas that have a NO_x cap and trade program. Furthermore, the EPA guidance requires a number of additional commitments for states claiming reductions from EE/RE measures. Given the uncertainties associated with ensuring that reductions from EE/RE measures meet the EPA's criteria to be SIP eligible (emissions reductions must be quantifiable, permanent, enforceable, and surplus) and current guidance the TCEQ has in more recent SIP revisions included EE/RE measures in the Weight of Evidence portion of the SIP rather than claim direct creditable reductions in the SIP.

Program for Emissions Reductions from Facilities

New Technology Implementation Grants (NTIG) Program

The NTIG was established in 2009 with a primary purpose to offset the incremental cost of emissions reductions of pollutants from facilities and other stationary sources in the State of Texas. Projects that may be funded under the NTIG include: Advanced Clean Energy Projects, as defined in THSC 382.003; New Technology Projects that reduce emissions of regulated pollutants from point sources; and Electricity Storage Projects related to renewable energy. Of the money allocated to the NTIG, the TCEQ is to set aside at least \$1 million annually to fund Electricity Storage Projects.

The TCEQ has awarded more than \$9.8 million to help fund seven projects since 2010, four of which involve electricity storage and three of which involve new technology implementation. In FY 2011, the TCEQ awarded \$3.7 million towards a wind powered energy storage system for compressed air in Gaines County. In the FY 2014 grant round, the TCEQ awarded grants for utility-scale electricity storage projects in Hays and Travis counties for about \$1 million each, and a new technology project involving carbon filtration for pollution abatement in Bexar County for \$500,000.

In FY 2016, the TCEQ awarded a \$3 million grant to help fund a battery powered electricity storage project in Bexar County, and approximately \$544,000 toward a new technology project in Wise County designed to help integrate alternative fuel in asphalt production.

The latest application period was opened July 18, 2016, through October 18, 2016, with \$7.1 million in available funds. Grant selections were expected to be completed and contracts awarded by the end of calendar year 2016. The final project list will be available on the TERP website at <www.terpgrants.org>.

Other Programs Included under the TERP

Regional Air Monitoring Program

SB 527, 82nd Texas Legislature, 2012, Regular Session, amended THSC 386.051 (b)(6) and 386.252 to establish a regional air monitoring program in the TCEQ Regions 3 and 4, which includes the Barnett Shale geological area. The statutory language directs TCEQ to allocate TERP funds for a regional air monitoring program implemented under the commission's oversight, including direction regarding the type, number, location, and operation of, and data validation practices for, monitors funded by the program through a regional nonprofit entity located in North Texas having representation from counties, municipalities, higher education institutions, and private sector interests across the area. The North Texas Commission (NTC) was found to meet all eligibility requirements and received a contract from the TCEQ on October 21, 2011.

The program was allocated up to \$7 million per fiscal year FY 2012 through 2013 to establish monitoring sites and begin monitoring activities and up to \$3 million in 2014 and subsequent years. The cumulative TERP expenditures for the program through August 31, 2016, were \$7,992,186. Unexpended funds under the Regional Air Monitoring Program were transferred into the DERI grant programs.

The NTC Regional Air Monitoring Program has a total of 21 monitoring sites to include 13 Automated Gas Chromatograph systems that provide near real-time volatile organic compound (VOC) data on an hourly basis and eight VOC canister systems that collect ambient air samples every six days. The regional air monitoring program was designed to collect air toxics data to determine the potential for health effects with the extensive growth in the region due to Barnett Shale gas production. Monitoring data to date has provided evidence that overall, shale play activity does not significantly impact air quality or pose a threat to human health.

Furthermore, the TCEQ has conducted extensive ambient air monitoring in this area, specifically looking at air emissions from natural gas operations. Based on the ambient air monitoring data collected in the Dallas/Fort Worth area (over 5 million air sampling measurements), and the TCEQ's conservative evaluation of the potential for human health risk to occur upon exposure to the measured concentrations, the TCEQ has concluded that there is no substantial health risk from short-term or long-term exposure to air emissions from these natural gas operations.

In June 2015, the TCEQ published a peer-reviewed paper in the Journal of Unconventional Oil and Gas Resources summarizing these findings.

Air Quality Research Support Program

The Air Quality Research Program (AQRP) is established under THSC Chapter 387. This program identifies and prioritizes scientific questions important to air quality management in Texas and funds scientific investigations to provide answers to these questions.

This program was originally part of the New Technology Research and Development (NTRD) Program, which was one of the original programs under the TERP. Through FY 2009, the NTRD Program, including the research program, was administered by the Texas Environmental Research Consortium (TERC) in Houston under contracts with the TCEQ. In 2009, HB 1796, 81st Texas Legislature, Regular Session, transferred the responsibility for administering the NTRD grants back to the TCEQ and authorized the TCEQ to contract with a nonprofit organization or institution of higher education to administer the program to support research related to air quality.

In 2011, SB 527, 82nd Texas Legislature, Regular Session, amended THSC Chapter 387 to eliminate the NTRD Program, but retained the air quality research component under a revised Chapter 387.

Since the change to the NTRD program in 2009, the TCEQ has contracted with the University of Texas at Austin to administer the research program. Research topics are identified and prioritized by an Independent Technical Advisory Committee (ITAC). Projects to be funded under the research program are selected from lists of ITAC recommended projects by the TCEQ and an Advisory Council.

The TERP allocations to this program are determined each fiscal biennium. The latest annual TERP allocation for FY 2016 through 2017 is \$1,000,000 per fiscal year. The total allocation since the AQRP was established is \$11,538,142, funding 50 separate projects by 20 individual lead entities and numerous collaborating entities.

Some of the major projects that have been sponsored through this program from FY 2010 through FY 2016 include:

- air quality measurements in the Houston area that quantified continuing progress in reducing emissions of Highly Reactive Volatile Organic Compounds;
- full-scale measurements of industrial flares that have led to operator training to reduce flaring emissions, and improved quantification of flare emissions;
- studies of natural emission sources, such as wildfires and biogenic emissions;
- air quality measurement programs in the Barnett Shale natural gas production region, near Fort Worth, that examined the role of emissions associated with natural gas production on ozone formation;

- improvements to the air quality models used to simulate air pollution events, and to evaluate proposed air quality regulations; and
- analysis of rich data sets collected during air quality field studies, including six major field campaigns that took place in Texas during 2006, 2009, 2011, and 2013.

Health Effects Studies

Each fiscal year, \$200,000 has been allocated from the TERP Fund for use by the TCEQ in conducting studies on health effects related to air quality and exposure to certain compounds and pollutants. The TCEQ will continue funding additional health effects studies with the allocation from the TERP Fund, as well as through other non-TERP funding sources. Recent studies and activities conducted in FY 2015 and 2016 are outlined below.

- A quantitative carcinogenicity assessment of oral exposure to inorganic arsenic was conducted. This work will result in a peer-reviewed journal article.
- An independent workshop on science, economic, and policy considerations behind the review of the federal ozone standard was held in Austin, Texas. Numerous well-regarded experts prepared and presented technical materials on different health and policy-related issues.
- An evaluation of the technical issues associated with monetizing climate benefits and health co-benefits from the EPA carbon dioxide reduction rules was conducted by NERA Economic Consulting.
- An evaluation of the lung function decrement modeling conducted by the EPA for predicting potential health outcomes due to ambient ozone levels was conducted. This work will result in a peer-reviewed journal article.
- Studies were conducted on the association between ozone and asthma. The studies began in FY 2014 and will conclude in FY 2015, resulting in multiple peer-reviewed journal articles.
- The TCEQ has also contracted to conduct other studies addressing the NAAQS criteria pollutants, particularly ozone, using non-TERP funding. These have included systematic reviews of associations between ozone and cardiovascular effects.

IV. TCEQ Monitoring of TERP Grants

To minimize the risk of fraud, a three-tiered Quality Assurance and Fraud Prevention and Detection Program was developed for the TERP incentive grant programs.

The three levels are listed and described below.

1. The Application Phase requires TCEQ to maintain a uniform process when reviewing applications; review and verify technologies; confirm emission reductions and cost-effectiveness calculations; maintain an electronic database; and perform duplicate reviews.
2. The Contract Phase requires TCEQ to consistently utilize template documents and obtain approval from TCEQ legal and central contracting offices for each contract; follow written grant management procedures; review reimbursement requests completed by fiscal and program staff prior to program management; maintain an electronic database for contract and fiscal information; perform on-site monitoring visits; and ensure an independent contractor physically verifies grantees' expenditures by performing on-site reviews of records and confirming the location and use of equipment.
3. The Tracking and Reporting Phase requires the TCEQ to ensure grantees track usage and report this usage information to the TCEQ for the life of the project; utilize internal and external auditors to perform desk and on-site reviews of activities; and maintain contract provisions for return of funds if the usage does not meet contract commitments or is not tracked and reported. This phase, along with on-site audits by the TCEQ, verifies the project's actual NO_x emission reductions and usage of the funded vehicle/equipment in the affected areas during the activity life.

Under all phases of grant administration, the TERP staff works with TCEQ legal and investigative staff to follow-up on noncompliance issues or issues of potential fraud or abuse.

V. Future Considerations for the TERP Programs

The TCEQ will continue to focus on achieving reductions in NO_x emissions and emissions of other pollutants to help nonattainment areas meet federal air quality standards and to help other areas address air quality concerns.

Legislative Update

In 2015, the 84th Texas Legislature considered several bills that would have extended the TERP grant programs until 2023, revised existing programs, added a program, and made other changes. However, those bills were not enacted.

The only bill affecting TERP was House Bill (HB) 7, 84th Texas Legislature, 2015, Regular Session. HB 7 was primarily related to issues not affecting the TERP. However, the bill amended §151.0515(b) of the Tax Code to revise the surcharge on the sale, lease, rental, storage, use or other consumption of new or used off-road, heavy-duty diesel equipment to be deposited to the TERP Fund. The surcharge was changed from 2% to 1.5%. This change was projected to reduce revenue going to the TERP Fund by approximately \$18 million per fiscal year.

Rule and Guideline Changes

On August 3, 2016, the commission adopted revisions to the rules and guidelines for the Drayage Truck Incentive Program. The commission also adopted revisions to the guidelines for the Diesel Emissions Reduction Incentive Program.

The changes to the DTIP rules and guidelines included:

- removing the requirement that vehicles purchased under the program have a day cab only;
- adding non-road cargo handling equipment to the list of eligible equipment;
- including facilities in a ship channel security district as part of an eligible seaport; and
- removing the provision authorizing the executive director to allow an engine replaced under the program to be sent for remanufacture in lieu of destruction.

The DERI Program guidelines were also revised to remove the provision authorizing the executive director to allow an engine replaced under the program to be sent for remanufacture in lieu of destruction.

The changes to the DTIP criteria are intended to make the program more effective in addressing emissions from the concentrated vehicle and equipment use in and around seaports and rail yards as a result of the movement of cargo to and from those facilities.

The removal of the provision allowing for sending an engine for remanufacture addressed concerns that the provision would facilitate continued use of older, higher-emitting vehicles and equipment, rather than supporting a shift to newer vehicles and equipment much sooner than would otherwise occur.

Changes to Cost-Effectiveness under the DERI Program

The statutory limits on the maximum cost-effectiveness of a project under the DERI Program were removed by the Texas Legislature in 2013, leaving the TCEQ with authority to set limits as needed to address program goals and objectives. For the grant application periods in FY 2015 and 2016, the TCEQ established a limit of \$10,000 per ton of NO_x reduced for locomotive and marine projects, up from \$5,000, and \$15,000 per ton for other project categories, up from \$10,000. This change was intended to broaden the number of potential projects and encourage continued participation in the program moving forward.

The TCEQ will assess the effectiveness of cost-effectiveness limits and make adjustments as appropriate in future grant rounds to ensure participation in the program while achieving the greatest level of emissions reductions for the least cost.

Program Expiration Dates

Currently, the various TERP programs expire by or before August 31, 2019. The program expiration dates are listed below.

August 31, 2017

Texas Clean Fleet Program, THSC Chapter 390
Texas Natural Gas Vehicle Grant Program, THSC Chapter 394
Clean Transportation Triangle Program, THSC Chapter 394

August 31, 2018

Alternative Fueling Facilities Program, THSC Chapter 393

August 31, 2019

Overall TERP authorization, THSC Chapter 386
Diesel Emissions Reduction Incentive Program, THSC Chapter 386, Subchapter C
Drayage Truck Incentive Program, THSC Chapter 386, Subchapter D-1
Regional Air Monitoring Program, THSC 386.252(a)(4)
New Technology Implementation Grants Program, THSC Chapter 391

With the expiration of THSC Chapter 386 on August 31, 2019, the authorization for the TERP Fund and the allocation of TERP money also expire. In addition, the various TERP fees and surcharges also expire on August 31, 2019, except that the fee on obtaining a certificate of vehicle title would continue to be collected and deposited to the Mobility Fund, but funds equivalent to the revenue received from that fee would no longer be transferred from the State Highway Fund to the TERP Fund.

New Federal Ozone Standards

In October 2015, the EPA lowered the NAAQS for ground-level ozone from 75 parts per billion (ppb) to 70 ppb. Recommendations for designations of attainment, nonattainment, or unclassifiable for all areas of the state were to be submitted by the Governor in fall 2016. The EPA was expected to make its final designations in fall 2017. Updates on the status designations are available through the TCEQ's website at <www.tceq.texas.gov/airquality>.

Any changes or additions to the TERP eligible counties will depend upon the final designations.

Also, with the new standards, new target dates will be identified for bringing designated ozone nonattainment areas into attainment through strategies outlined in an updated state implementation plan. It is anticipated that new attainment dates will be set for early or middle of the next decade.

Role of TERP Going Forward

The role of the TERP going forward will depend upon decisions made by the legislature regarding the expiration dates, funding levels, and individual grant programs. Under current statutory provisions, the TERP funding and programs will expire by August 31, 2019.

Projects funded through the current expiration dates will continue to achieve emissions reductions for over the life of those projects, most of which extend for four to seven years.

The TCEQ continues to be available to provide analysis, data, research, and information that may be needed to assist the legislature in determining the future of the TERP.

Appendix 1. TERP Advisory Board Members

Appointed by the Governor

Dr. David T. Allen, Ph.D.

The University of Texas at Austin

Representing a Nonprofit Organization or Institution of Higher Education

Mr. Russell Tharp

Goodman Manufacturing Co.

Representing the Air Conditioning Manufacturing Industry

Ms. L. Elizabeth Gunter

American Electric Power

Representing the Electric Utility Industry

Mr. Danny R. Perkins

Representing Regional Transportation

Mr. Mark L. Rhea

Lisa Motor Lines

Representing the Trucking Industry

Appointed by the Speaker, Texas House of Representatives

Mr. Art Daniel

AR Daniel Construction Services, Inc.

Representing the Construction Industry

Ms. Kathleen Hartnett White

Representing Consumer Groups

"Vacant"

Representing the Fuel Industry

Mr. Jerry Harris

King-Mesa Gin

Representing the Agriculture Industry

Mr. Steve Late

BMW of Austin

Representing the Automobile Industry

Appointed by the Lieutenant Governor of Texas

Mr. Michael Flores

McKinstry, Inc.
Representing the Energy-Efficient Construction Industry

Mr. Thomas “Smitty” Smith

Public Citizen
Representing the Environmental Community

Mr. Jim Crites

Dallas/Fort Worth International Airport Board
Representing the Air Transportation Industry

Mr. John Mikolaitis

Cummins Southern Plains, LLC
Representing the Engine Manufacturing Industry

"Vacant"

Representing the Fuel Cell Industry

Ex Officio Membership

Honorable Craig Estes

Chair, Senate Natural Resources and Economic Development Committee

Honorable Geanie W. Morrison

Chair, House Environmental Regulation Committee

Mr. Joe Walton

Texas Commission on Environmental Quality

Mr. Daryl Morgan

Texas General Land Office

Mr. Dan Kelly

Railroad Commission of Texas

Mr. Dub Taylor

State Energy Conservation Office, Texas Comptroller of Public Accounts

Mr. John Walser

United States Environmental Protection Agency, Region 6

Appendix 2. TERP Fund

	FY 2015	FY 2016 ¹	Est FY 2017 ²
Beginning Balance (Unencumbered)	899,750,380	995,010,900	1,122,686,798
REVENUE			
3004 Heavy-Duty Motor Vehicle Sales, Lease, & Use	17,309,266	16,494,616	15,629,000
3012 Motor Vehicle Certificate of Title	124,728,058	127,428,992	117,000,000
3014 Commercial Motor Vehicle Registration	13,597,459	12,534,923	14,527,000
3020 Commercial Motor Vehicle Inspection	2,643,132	3,913,377	7,016,000
3102 Diesel Equipment Sales, Lease, & Use	73,810,052	60,661,171	51,824,000
Subtotal: Actual/Estimated Revenue	232,087,967	221,033,079	205,996,000
Total Available	1,131,838,347	1,216,043,979	1,328,682,798
DEDUCTIONS:			
Regular Appropriation to the TCEQ	(77,596,163)	(118,124,844)	(118,138,163)
Statewide Cost Allocation Plan	(709,224)	(642,840)	(564,990)
Transfer - Employee Benefits	(614,106)	(656,566)	(717,267)
Transfer – Retire Benefits	-	(139,690)	(190,109)
Lapsed Appropriation	1,444,137	-	-
Unexpended Balance Authority (2014-15 GAA) ³	(58,311,157)	-	-
Transfer to Clean Air Account (Fund 151)	(500,000)	(500,000)	(500,000)
Appropriation to the Energy Systems Laboratory, Texas A&M Engineering Experiment Station	(454,254)	(462,043)	(462,043)
Capital Budget Unexpended Balance (2014-15 GAA) ³	(36,680)	-	-
Data Center Adjustments (2014-15 GAA)	(50,000)	-	-
Unexpended Balance Authority within the Biennium (2016-17 GAA) ³	-	27,168,803	(27,168,803)
TOTAL DEDUCTIONS	(136,827,447)	(93,357,180)	(147,741,375)
Ending Fund / Account Balance	995,010,900	1,122,686,798	1,180,941,423

¹Amounts listed for FY 2016 are still subject to change as the fiscal year finances are reconciled.

²Amounts listed for FY 2017 are estimated.

³The TCEQ may carry forward appropriated amounts from the first fiscal year to the second fiscal year of the fiscal biennium.

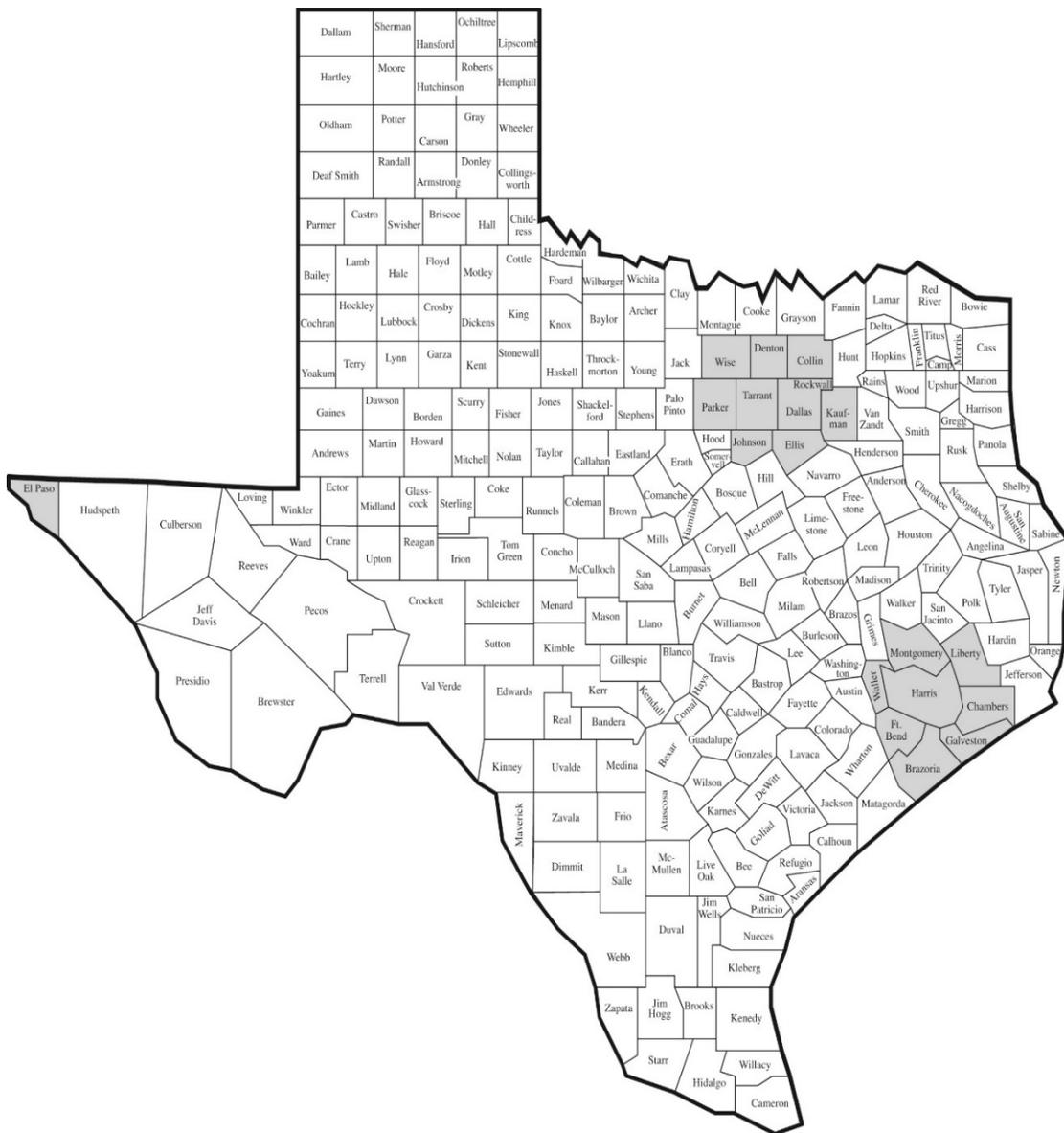
Appendix 3. TERP Funding Allocation

Program	FY 2016/2017 Annual Allocation	Statutory Allocation Percentage (%) ¹
TCEQ Administration	\$4,724,994 (FY 16) \$4,725,527 (FY 17)	greater of 4% or \$4,000,000
Texas Clean School Bus Program	\$4,724,994 (FY 16) \$4,725,527 (FY 17)	not more than 4%
New Technology Implementation Grants (max)	\$3,543,745 (FY 16) \$3,544,145 (FY 17)	not more than 3% <i>\$1,000,000 to go to battery storage</i>
Texas Clean Fleet Program	\$5,906,242 (FY 16) \$5,906,908 (FY 17)	5%
Regional Air Monitoring Program	\$3,000,000	not more than \$3,000,000
Texas Natural Gas Vehicle Grant Program	\$18,899,975 (FY 16) \$18,902,106 (FY 17)	not less than 16%
Clean Transportation Triangle Program (max)	\$5,906,242 (FY 16) \$5,906,908 (FY 17)	not more than 5%
Alternative Fueling Facilities Program	\$5,906,242 (FY 16) \$5,906,908 (FY 17)	not more than 5%
Health Effects Study (max)	\$200,000/ FY	not more than \$200,000
Research	\$1,000,000/ FY	a specified amount
Energy Systems Laboratory Contract	\$216,000/ FY	not more than \$216,000
Drayage Truck Incentive Program	\$2,362,497 (FY 16) \$2,362,763 (FY 17)	at least 2% and up to 5%
Diesel Emission Reduction Incentive Programs	\$61,733,913 (FY 16) \$61,741,371 (FY 17)	balance of the TCEQ appropriation
TCEQ TERP Appropriation	\$118,124,844 (FY 16) \$118,138,163 (FY 17)	

¹THSC 386.252 outlines the percentages for allocating the amounts appropriated to the TCEQ from the TERP Fund.

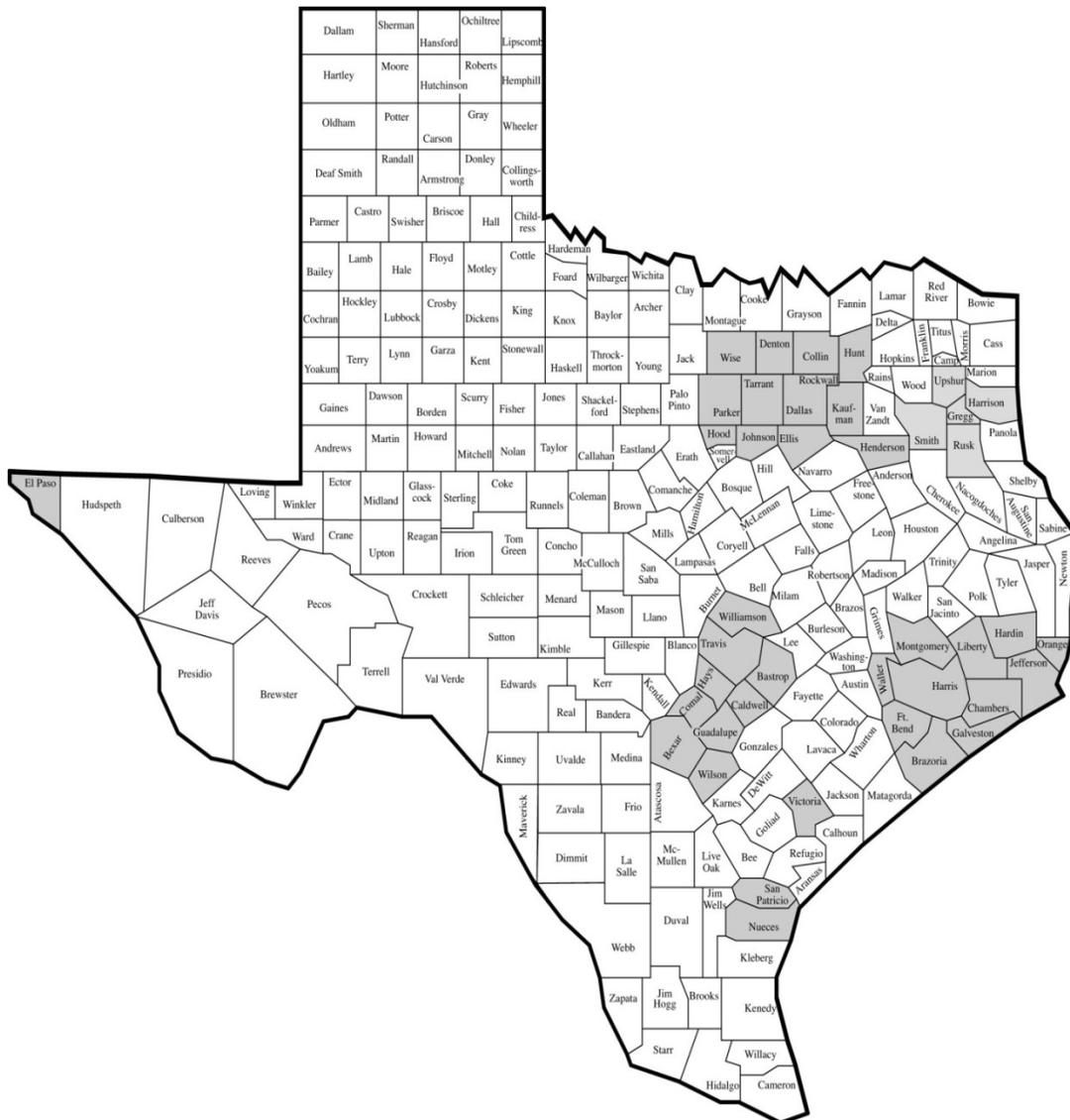
Appendix 4. Texas Nonattainment Area Counties

Area	Counties
Dallas-Fort Worth Eight-Hour Ground-Level Ozone Nonattainment Area	Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise
Houston-Galveston-Brazoria Eight-Hour Ground-Level Ozone Nonattainment Area	Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller
City of El Paso Particulate Matter (PM₁₀) Nonattainment Area	El Paso County (for purposes of TERP eligibility, the TCEQ includes the entire county)
Colin County Lead Nonattainment Area	Part of Colin County



Appendix 5. Diesel Emissions Reduction Incentive Program Counties

Bastrop	Bexar	Brazoria	Caldwell	Chambers
Collin	Comal	Dallas	Denton	Ellis
El Paso	Fort Bend	Galveston	Gregg	Guadalupe
Hardin	Harris	Harrison	Hays	Henderson
Hood	Hunt	Jefferson	Johnson	Kaufman
Liberty	Montgomery	Nueces	Orange	Parker
Rockwall	Rusk	San Patricio	Smith	Tarrant
Travis	Upshur	Victoria	Waller	Williamson
Wilson	Wise			



Appendix 6. DERI Program Projects by Area

Texas Emissions Reduction Plan (TERP) Diesel Emissions Reduction Incentive (DERI) Program

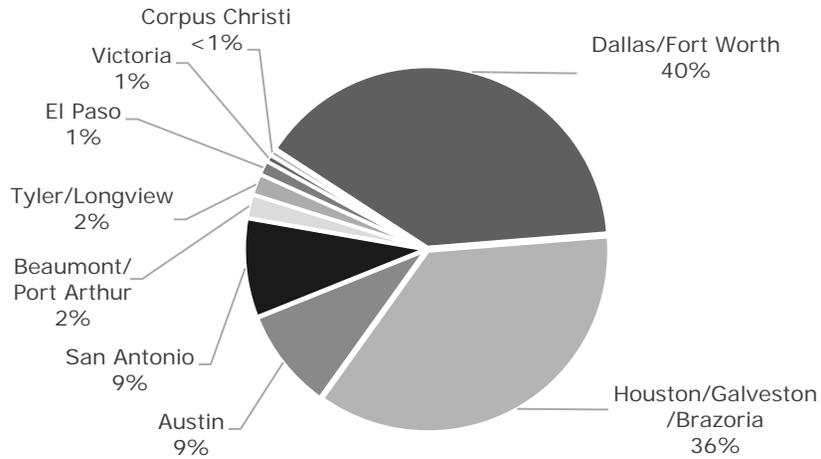
Projects by Area 2001 through August 31, 2016 (Does not include projects funded and subsequently canceled)

Area	Number of Projects	Number of Activities	Total NO _x Reduced (Tons)	Grant Amount	Cost Per Ton	Tons Per Day of NO _x Reduced 2016	Tons Per Day of NO _x Reduced 2017	Tons Per Day of NO _x Reduced 2018	Tons Per Day of NO _x Reduced 2019
Dallas/Fort Worth	4,233	6,900	60,109.66	\$348,878,660	\$5,804	15.70	12.28	10.14	9.86
Houston/Galveston/Brazoria	3,869	6,653	75,739.43	\$423,637,953	\$5,593	18.55	14.10	12.56	11.61
Austin	966	1,414	9,436.03	\$74,818,997	\$7,929	2.77	2.24	1.90	2.04
San Antonio	944	1,411	9,975.21	\$71,535,878	\$7,171	3.03	2.36	1.82	1.80
Beaumont/Port Arthur	224	476	8,714.13	\$45,301,562	\$5,199	1.64	1.21	1.03	1.00
Tyler/Longview	200	300	5,155.87	\$32,234,368	\$6,252	1.45	0.91	0.45	0.11
El Paso	137	173	714.57	\$3,261,310	\$4,564	0.00	0.00	0.00	0.01
Victoria	67	82	532.62	\$4,850,571	\$9,107	0.07	0.07	0.16	0.26
Corpus Christi	58	220	1,567.76	\$8,739,923	\$5,575	0.10	0.11	0.24	0.30
Total	10,698	17,629	171,945.29	\$1,013,259,223	\$5,893	43.29	33.28	28.29	26.97

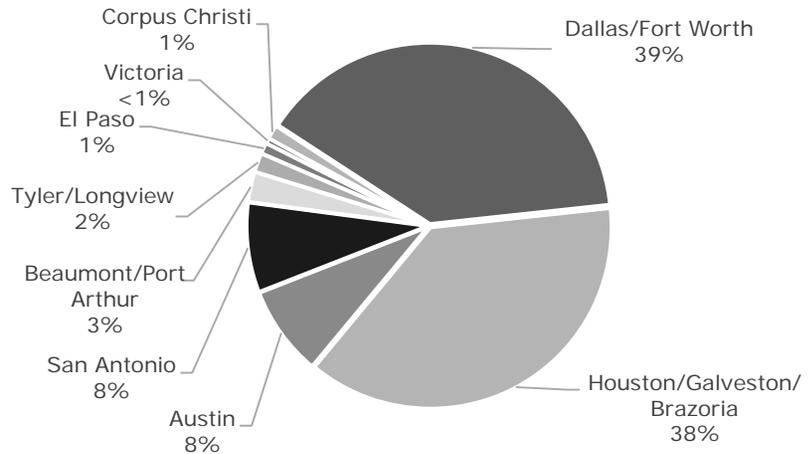
¹DERI numbers include \$12.5 million in federal American Recovery and Reinvestment Act funding in 2010, for 1,324 tons of NO_x reduced.

**Texas Emissions Reduction Plan (TERP)
Diesel Emissions Reduction Incentive (DERI) Program
Percentages by Area
2001 through August 31, 2016**

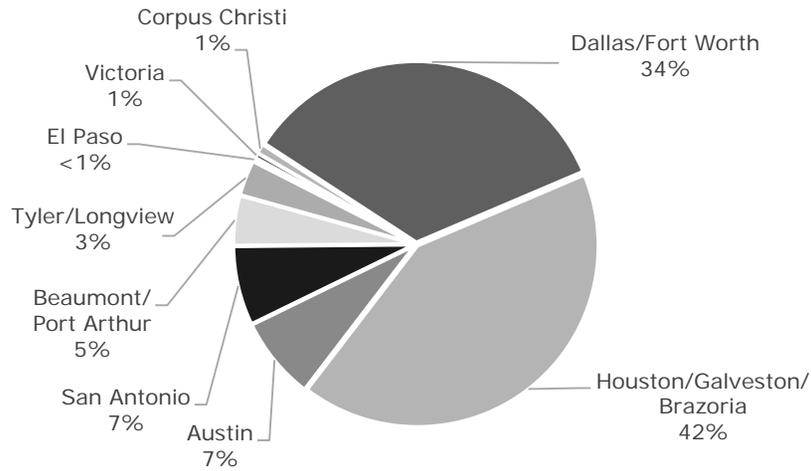
Number of Projects



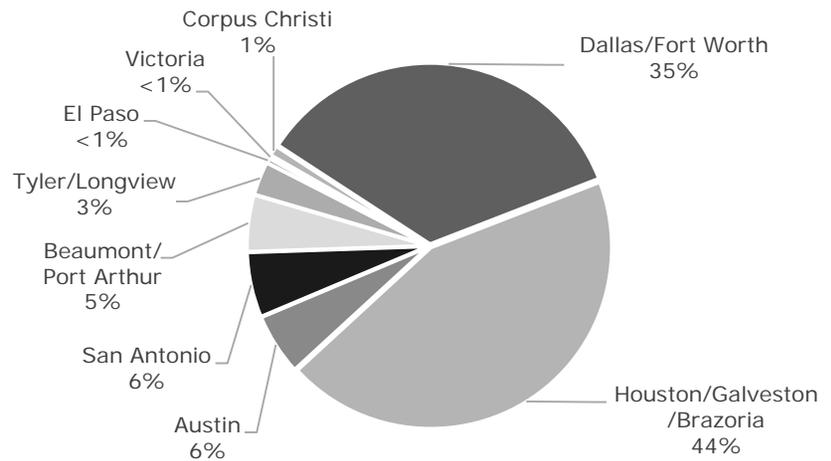
Number of Activities



Grant Amount



Total NOX Reduced (Tons)



Appendix 7. DERI Program Projects by Emissions Source

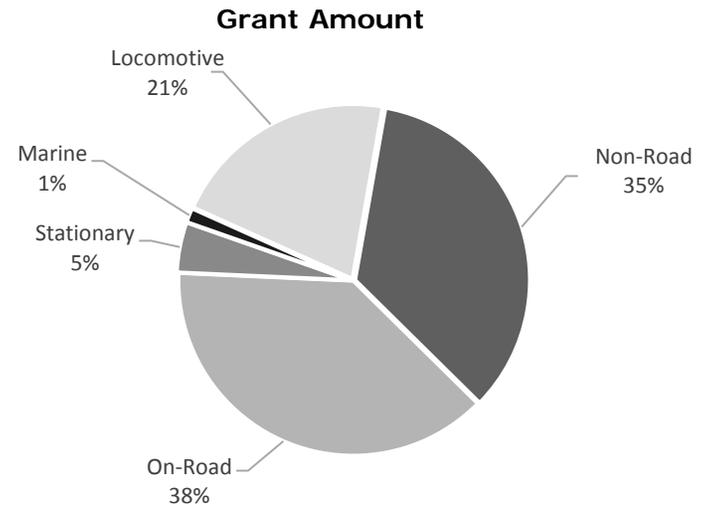
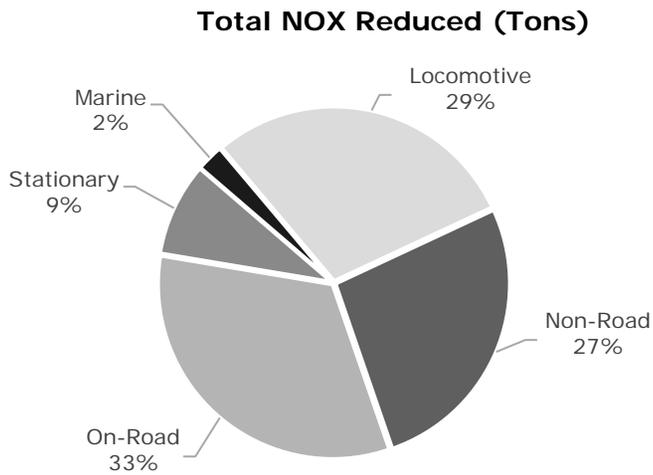
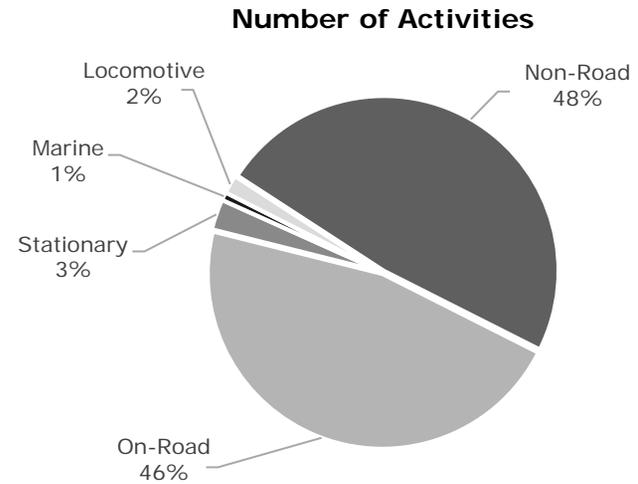
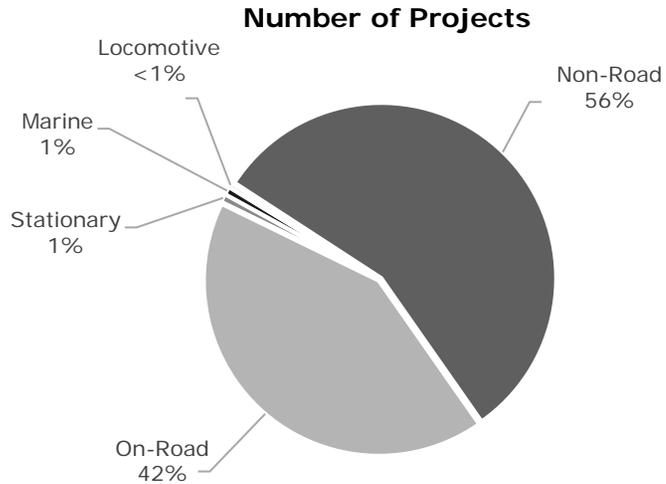
Texas Emissions Reduction Plan (TERP) Diesel Emissions Reduction Incentive (DERI) Program

Projects Funded To Date, by Emissions Source 2001 through August 31, 2016¹ (Does not include projects funded and subsequently canceled)

Emission Source	Number of Projects	Number of Activities	Total NO _x Reduced (Tons)	Grant Amount	Cost Per Ton	Tons Per Day of NO _x Reduced 2016	Tons Per Day of NO _x Reduced 2017	Tons Per Day of NO _x Reduced 2018	Tons Per Day of NO _x Reduced 2019
Non-Road	6,003	8,509	45,840.83	\$350,659,627	\$7,650	13.10	9.42	7.66	7.86
On-Road	4,487	8,192	56,598.05	\$388,343,913	\$6,861	15.16	11.15	8.46	7.92
Stationary	82	497	14,920.10	\$47,140,678	\$3,160	3.36	2.24	1.90	1.61
Marine	79	131	4,341.11	\$13,604,458	\$3,134	0.88	0.32	0.22	0.18
Locomotive	47	300	50,245.19	\$213,510,547	\$4,249	10.80	10.15	10.05	9.40
Total	10,698	17,629	171,945.29	\$1,013,259,223	\$5,893	43.29	33.28	28.29	26.97

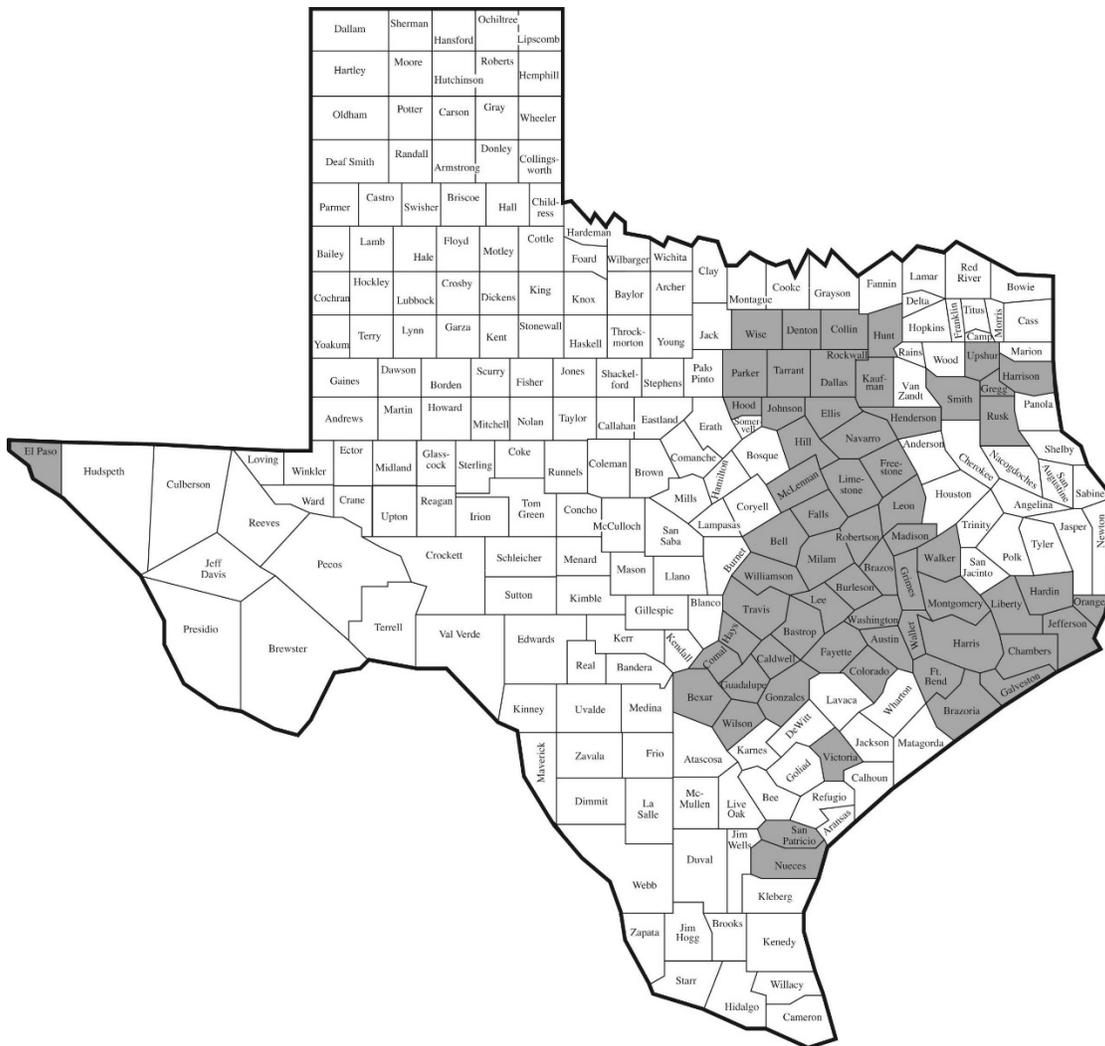
¹DERI Rebate grant numbers include \$12.5 million in federal American Recovery and Reinvestment Act funding in 2010, for 1,324 tons of NO_x reduced.

**Texas Emissions Reduction Plan (TERP)
Diesel Emissions Reduction Incentive (DERI) Program
Percentages by Emissions Source
2001 through August 31, 2016**



Appendix 8. Clean Transportation Triangle Counties

Austin	Bastrop	Bell	Bexar	Brazoria	Brazos	Burleson
Caldwell	Chambers	Collin	Colorado	Comal	Dallas	Denton
El Paso	Ellis	Falls	Fayette	Fort Bend	Freestone	Galveston
Gonzales	Gregg	Guadalupe	Hardin	Harris	Harrison	Hays
Henderson	Hill	Hood	Hunt	Jefferson	Johnson	Kaufman
Lee	Leon	Liberty	Limestone	Madison	McLennan	Milam
Montgomery	Navarro	Nueces	Orange	Parker	Robertson	Rockwall
Rusk	San Patricio	Smith	Tarrant	Travis	Upshur	Victoria
Walker	Waller	Washington	Williamson	Wilson	Wise	



Note – The CTT counties also represent the counties eligible for operation of grant-funded vehicles under the Texas Clean Fleet Program and the Texas Natural Gas Vehicle Grant Program.

Appendix 9. TCFP Projects by Area and Fuel Type

Texas Emissions Reduction Plan (TERP) Texas Clean Fleet Program (TCFP)

Projects by Area 2009 through August 31, 2016 (Does not include projects funded and subsequently canceled)

Area	Number of Projects	Number of Activities	Total NO _x Reduced (Tons)	Grant Amount	Cost Per Ton	Tons Per Day of NO _x Reduced 2016	Tons Per Day of NO _x Reduced 2017	Tons Per Day of NO _x Reduced 2018	Tons Per Day of NO _x Reduced 2019
Houston/Galveston/Brazoria (HGB)	8	208	145.95	\$14,080,373	\$96,473	0.07	0.07	0.03	0.05
Austin (AUS)	6	138	139.19	\$12,886,133	\$92,579	0.10	0.10	0.08	0.04
Dallas/Fort Worth (DFW)	6	126	212.49	\$11,847,383	\$55,756	0.15	0.15	0.15	0.17
Total	20	472	497.63	\$38,813,889	\$77,998	0.32	0.32	0.26	0.26

Projects by Fuel Type 2009 through August 31, 2016 (Does not include projects funded and subsequently canceled)

Fuel Type	Number of Projects	Number of Activities	Total NO _x Reduced (Tons)	Grant Amount	Cost Per Ton	Tons Per Day of NO _x Reduced 2016	Tons Per Day of NO _x Reduced 2017	Tons Per Day of NO _x Reduced 2018	Tons Per Day of NO _x Reduced 2019
LPG	11	251	145.41	\$15,068,011	\$103,625	0.08	0.08	0.02	0.05
CNG	7	148	285.57	\$18,313,911	\$64,131	0.21	0.21	0.21	0.19
Diesel Hybrid	2	73	66.65	\$5,431,967	\$81,505	0.03	0.03	0.03	0.02
Total	20	472	497.63	\$38,813,889	\$77,997	0.32	0.32	0.26	0.26

Appendix 10. TNGVGP Projects by Area and Fuel Type

Texas Emissions Reduction Plan (TERP) Texas Natural Gas Vehicle Grant Program (TNGVGP)

Projects by Area 2009 through August 31, 2016 (Does not include projects funded and subsequently canceled)

Area	Number of Projects	Number of Activities	Total NO _x Reduced (tons)	Grant Amount	Cost Per Ton	Tons Per Day of NO _x Reduced 2016	Tons Per Day of NO _x Reduced 2017	Tons Per Day of NO _x Reduced 2018	Tons Per Day of NO _x Reduced 2019
Dallas/Fort Worth (DFW)	44	435	581.74	\$14,510,788.00	\$24,944	0.38	0.56	0.57	0.52
Houston/Galveston/Brazoria (HGB)	23	269	338.66	\$12,172,304.03	\$35,943	0.28	0.32	0.33	0.32
San Antonio (SAT)	4	48	105.99	\$2,402,762.40	\$22,669	0.09	0.10	0.09	0.05
Austin (AUS)	5	40	72.09	\$1,854,428.14	\$25,725	0.05	0.07	0.07	0.07
Tyler/Longview (TYL)	2	12	25.48	\$497,642.76	\$19,528	0.02	0.02	0.02	0.02
Beaumont/Port Arthur (BPA)	1	2	2.79	\$40,000.87	\$14,329	0.00	0.00	0.00	0.00
El Paso (ELP)	2	20	34.93	\$528,000.00	\$15,115	0.03	0.03	0.03	0.03
Corpus Christi (CC)	1	1	6.63	\$264,995.03	\$39,950	0.00	0.01	0.01	0.00
Victoria (VIC)	0	0	2.85	\$46,093.26	\$16,192	0.00	0.00	0.00	0.00
Other CTT Areas	21	136	401.68	\$11,732,473.96	\$29,209	0.38	0.40	0.38	0.31
Total	103	963	1,572.84	\$44,049,488.00	\$28,006	1.25	1.52	1.52	1.33

Projects by Fuel Type 2009 through August 31, 2016 (Does not include projects funded and subsequently canceled)

Fuel Type	Number of Projects	Number of Activities	Total NO _x Reduced (Tons)	Grant Amount	Cost Per Ton	Tons Per Day of NO _x Reduced 2016	Tons Per Day of NO _x Reduced 2017	Tons Per Day of NO _x Reduced 2018	Tons Per Day of NO _x Reduced 2019
CNG	83	757	1131.52	\$31,140,488	\$27,521	0.83	1.08	1.09	0.91
LNG	13	147	284.72	\$7,599,000	\$26,690	0.26	0.28	0.28	0.26
LNG/ Diesel	7	59	156.60	\$5,310,000	\$33,908	0.16	0.16	0.16	0.16
Total	103	963	1,572.84	\$44,049,488	\$28,006	1.25	1.52	1.52	1.33

Appendix 11. DTIP Projects by Area

Texas Emissions Reduction Plan (TERP)
Drayage Truck Incentive Program (DTIP)

Projects by Area
2014 through August 31, 2016
(Does not include projects funded and subsequently canceled)

Area	Number of Projects	Number of Activities	Total NO _x Reduced (tons)	Grant Amount	Cost Per Ton	Tons Per Day of NO _x Reduced 2016	Tons Per Day of NO _x Reduced 2017	Tons Per Day of NO _x Reduced 2018	Tons Per Day of NO _x Reduced 2019
Houston/Galveston/Brazoria (HGB)	8	37	207.89	\$3,442,975	\$16,562	0.16	0.16	0.17	0.17
Dallas/Fort Worth (DFW)	1	10	25.10	\$501,524	\$19,983	0.00	0.00	0.02	0.02
Total	9	47	232.98	\$3,944,499	\$16,930	0.16	0.16	0.19	0.19