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Texas Emissions Reduction Plan Biennial Report (2019-2020)

Report to the 87th Texas Legislature

Air Grants Division

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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A PROGRAM OF TCEQ

Prepared by:
Air Grants Division
Texas Commission on Environmental Quality
SFR-079/20

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY · PO BOX 13087 · AUSTIN, TX 78711-3087

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Summary

Summary

Texas Emissions Reduction Plan

In 2001, the 77th Texas Legislature enacted Senate Bill (SB) 5, establishing the TERP under Texas Health and Safety Code (THSC) Chapter 386. Under THSC Section 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-savings and multiple benefits by reducing emissions of other pollutants.
4. Achieving reductions of emissions of diesel exhaust from school buses.
5. Advancing technologies that reduce NO_X and other emissions from facilities and other stationary sources.

Texas Commission on Environmental Quality (TCEQ) produced this ninth Texas Emissions Reduction Plan (TERP) biennial report to fulfill the requirements of THSC Sections 386.057, 386.116(d), and 395.015.

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 during the Fiscal Year (FY) 2020–2021 biennium is projected to be $505,936,438. Biennial appropriations and statutorily required transfers and deductions from the TERP Fund are expected to be $161,275,157, including $154,747,204 appropriated to TCEQ to fund and administer the TERP grant programs.

The unexpended balance in the TERP Fund at the end of the FY 2018-2019 biennium was $1,648,306,403. The balance at the end of the FY 2020-2021 biennium is projected to reach $1,992,967,684.

Program Highlights

The TERP includes incentive funding for a variety of programs. The primary TERP grant program provides grants to reduce NO_X emissions from mobile sources in the state's nonattainment areas and other affected counties. Other programs include funding to:

- Encourage the use of natural gas vehicles and other alternative fuel vehicles, and infrastructure to provide fuel for those vehicles.
- Reduce emissions from school buses.
- Encourage greater use of light-duty vehicles powered by electricity or an alternative fuel.
- Conduct studies and fund pilot programs for Port Authorities to encourage cargo movement that reduces emissions.
- Fund new technologies to reduce emissions from certain stationary facilities.
- Fund air monitoring in the North Texas region.
- Establish energy efficiency programs.

TERP Program Highlights

Below are key program highlights through August 2020.

Diesel Emissions Reduction Incentive Program

Since 2001, the Diesel Emissions Reduction Incentive Program has provided over $1 billion to replace or upgrade 19,955 vehicles and pieces of equipment. These projects will reduce NO_X in the nonattainment areas and other affected counties by 183,434 tons.

Texas Clean Fleet and Texas Natural Gas Vehicle Grant Programs

TCEQ implemented the Texas Clean Fleet Program in 2009 and the Texas Natural Gas Vehicle Grant Program in 2012. Together, they have provided over $118 million to replace or upgrade 1,892 existing vehicles with new vehicles or engines powered by natural gas or an alternative fuel. These projects will reduce NO_X in the area designated the Clean Transportation Zone by 2,363 tons.

Seaport and Rail Yard Areas Emissions Reduction Program

Since 2015, the Seaport and Rail Yard Areas Emissions Reduction Program has provided over $19 million to replace 261 drayage vehicles and pieces of cargo handling equipment operating at seaport and rail yard facilities in the non-attainment areas. These projects will reduce NO_X in the nonattainment areas and other affected counties by 952 tons.

Alternative Fueling Facilities Program

Since 2012, the Alternative Fueling Facilities Program has provided over $20 million to establish 129 natural gas, alternative fuel, or electric charging facilities in the area designated the Clean Transportation Zone.

Texas Clean School Bus Program

Since 2008, the Texas Clean School Bus Program has provided over $48 million, including over $4 million in federal funds, to retrofit or replace 7,794 school buses in Texas.

New Technology Implementation Grants Program

Since 2010, the New Technology Implementation Grants Program has provided over $11 million to reduce emissions from stationary sources.

Port Authority and Studies Pilot Projects Program

TCEQ implemented the Port Authority and Studies Pilot Projects Program in 2018. Since then, the program has provided $1 million to Port Houston for studies and pilot programs that provide incentives to encourage cargo movement that reduces emissions.

Light-Duty Motor Vehicle Purchase or Lease Incentive Program

TCEQ implemented the Light-Duty Motor Vehicle Purchase or Lease Incentive Program in 2014 and reinstated it in 2017. Since then, the program has provided over $11 million in rebates for the purchase or lease of light-duty alternative fuel and electric-powered vehicles. This includes rebates for 4,607 plug-in electric and plug-in hybrid electric vehicles and 265 natural gas vehicles.

Regional Air Monitoring Program

Since 2012, the Regional Air Monitoring Program has provided over $21 million to establish air monitoring sites in the North Texas region. These sites include 13 Automated Gas Chromatograph systems that provide near real-time volatile organic compound data on an hourly basis and eight volatile organic compound canister systems that collect ambient air samples every six days.

I. Overview

The Texas Emissions Reduction Plan (TERP) was established by Senate Bill (SB) 5, 77th Texas Legislature, Regular Session, 2001, under Texas Health and Safety Code (THSC), Chapter 386. The TERP has subsequently been updated and modified to ensure program objectives are being met and to address new priorities.

Under THSC Section 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.
5. Advancing technologies that reduce NO_X and other emissions from facilities and other stationary sources.

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 affected counties for ozone. Lowering NO_X emissions from the 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)
- Seaport and Rail Yard Areas Emissions Reduction (SPRY) Program
- Alternative Fueling Facilities Program (AFFP)
- Texas Clean School Bus (TCSB) Program
- New Technology Implementation Grants (NTIG) Program
- Light-Duty Motor Vehicle Purchase or Lease Incentive Program (LDPLIP)

Additional TERP programs include:

- Port Authorities Studies and Pilot Projects (PASPP) Program
- 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

II. Funding

Texas Emissions Reduction Plan Fund

The TERP is funded from revenue deposited to the TERP Fund established under THSC Section 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 Section 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 consumption of this equipment in Texas).
- Tax Code Section 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 Section 502.358: A 10% surcharge of the total fees due for the registration of truck-tractors and commercial motor vehicles.
- Texas Transportation Code Section 501.138(a): A portion of the vehicle certificate of title fee, $20 of the $33 fee for applicants in the nonattainment counties and affected counties and $15 of the $28 fee for applicants in all other counties.
- Texas Transportation Code Section 548.5055: A $10 fee on commercial motor vehicles required to have an annual safety inspection.
- The fees and surcharges will continue until, for each active or revoked ozone NAAQS, all areas in Texas have been designated by the EPA as in attainment or unclassifiable/attainment or the EPA has approved a re-designation substitute making a finding of attainment. The TERP fees and surcharges will expire once there is no pending judicial review of those EPA actions, and the final notice of such action is published in the Texas Register by TCEQ as required by THSC Section 387.037.

Use of the revenue deposited to the TERP Fund is authorized through appropriation by the Texas Legislature and other statutorily directed deductions from the Fund. Revenue into the TERP Fund during the Fiscal Year (FY) 2020-2021 biennium is projected to be $505,936,438. The revenue deposits and the appropriation from the TERP Fund are listed in Appendix 1, *TERP Fund*.

Funds Allocation

TCEQ was appropriated $77,375,437 in FY 2020 and $77,371,767 in FY 2021 to implement and administer the TERP programs. The allocation of appropriated

amounts from the TERP Fund is set forth in THSC Section 386.252. The amounts are listed by program in Appendix 2, *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 Section 386.352, the legislative appropriations under the State Appropriations Act dictate the specific funding amounts that may be used and how those funds are initially allocated among the TERP programs. TCEQ may re-allocate funding among the TERP programs based on demand for grants for eligible projects once grant rounds are opened.

III. Program Accomplishments

The sections that follow include the accomplishments of the TERP grant programs from implementation through August 2020. Programs are organized by their stated goals to reduce NO_X emissions from vehicles and equipment, provide alternative fuels for transportation, reduce vehicle emissions, encourage energy efficiency, or achieve emissions reductions from facilities.

Grants to Reduce NO_X Emissions from Vehicles and Equipment

Diesel Emissions Reduction Incentive (DERI) Program

The DERI Program, established under THSC Chapter 386, provides grants for projects that reduce NO_X emissions in the 41 DERI-eligible counties, including counties designated nonattainment (see Appendix 3, *Texas Nonattainment Area Counties*) and other affected counties (see Appendix 4, *DERI Program Eligible Counties)*.

Since 2001, the DERI Program has provided $1,147,735,817 for 12,331 grant projects totaling 183,434 tons of projected NO_X reductions in the DERI-eligible counties. The DERI program remains the most cost effective TERP program at an average cost of $6,257 per ton of NO_X reduced.

A summary of DERI projects awarded through August 2020 is provided by area in Appendix 5, *DERI Program Projects by Area* and by emissions source in Appendix 6, *DERI Program Projects by Emissions Source.* A complete list of grant projects is available on the TERP website at www.terpgrants.org.

The emissions reductions presented are projections based on emissions reduction calculations completed for each grant project. The projections are continually updated to account for completed projects, newly awarded projects, and changes to active projects. During FY 2020, at least 90% of grantees with active DERI contracts met their emissions reductions commitment.

The status of each DERI grant program is provided below.

Emissions Reduction Incentive Grants (ERIG) Program

The ERIG Program provides grants for the lease or purchase, replacement, repower, or retrofit of non-road equipment, heavy-duty on-road vehicles, marine vessels, locomotives, and stationary equipment. Grants may also be available for the acquisition and installation of refueling and idle-reduction infrastructure for heavy-duty non-road equipment, heavy-duty on-road vehicles, marine vessels, locomotives, and stationary equipment.

Since 2001, the ERIG Program has provided $871,398,686 in grants for 5,433 projects totaling 151,092 tons of projected NO_X reductions at an average cost of $5,767 per ton of NO_X reduced.

The most recent ERIG Program grant round closed in August 2018. TCEQ received 952 applications totaling over $97 million in requested grant funding. TCEQ was able to award $55,854,016 in grants for 542 projects totaling 4,816 tons of projected NO_X reductions at an average cost of $11,597 per ton of NO_X reduced.

Rebate Grants Program

The Rebate Grants Program provides a streamlined and simplified process for the submission and approval of grants for projects to reduce NO_X emissions from heavy-duty on-road diesel vehicles and non-road diesel equipment. Rebate grants are based on pre-approved maximum rebate grant amounts for eligible on-road and non-road replacement and repower projects.

Since 2006, the Rebate Grants Program has provided $198,422,619 in grants for 3,077 projects totaling 22,326 tons of projected NO_X reductions at an average cost of $8,888 per ton of NO_X reduced.

The latest Rebate Grants Program grant round was opened on August 8, 2020 with $10 million in available funding. The program was closed on August 21, 2020 after TCEQ received a sufficient number of applications to award all available funding.

Small Business Grants Program

The Small Business Grants Program targets small businesses and other entities that, for more than two years, have owned and operated up to five vehicles or pieces of equipment, or a combination of the two, one of which must be diesel-powered.

The program includes a streamlined application process for small businesses in the DERI-eligible counties to apply for financial assistance to replace or repower vehicles or equipment. TCEQ has incorporated the Small business Grants Program into the Rebate Grants Program by providing a set-aside funding amount for projects submitted by small businesses.

Since 2006, the Rebate Grants Program has provided $86,589,073 in grants to small businesses for 1,316 projects totaling 10,043 tons of NO_X reductions.

Third-Party Grant Program

TCEQ has awarded eight third-party grant contracts to four grantees to assist with the implementation of TERP projects in the DERI-eligible counties: the Railroad Commission of Texas was awarded $44,150,000 to fund propane and natural gas vehicles and equipment projects; the North Central Texas Council of Governments was awarded $22,823,372 to fund various TERP projects, including refuse haulers; the Houston-Galveston Area Council was awarded $8,000,000 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 was awarded $6,150,000 to fund natural gas vehicle and equipment projects.

Since 2004, the Third-Party Grants Program has provided $65,489,149 in grants to 3,589 third-party sub-grant recipients totaling 8,694 tons of projected NO_X reductions at an average cost of $7,532 per ton of NO_X reduced.

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

Texas Clean Fleet Program (TCFP)

The TCFP, established under THSC Chapter 392, provides grants to owners of at least 75 vehicles in Texas to replace a minimum of 10 diesel vehicles with new alternative-fuel or hybrid vehicles. Eligible alternative fuels include compressed natural gas (CNG), liquefied natural gas (LNG), liquefied petroleum gas (LPG), hydrogen, methanol (85 % by volume), and electricity.

Grant-funded vehicles are required to operate at least 25% of annual use in one or more of the counties included in the Clean Transportation Zone. A map of those counties is included in Appendix 7, *Clean Transportation Zone Counties*.

Since 2010, the TCFP has provided $61,626,649 in grants for 32 projects totaling 667 tons of projected NO_X reductions at an average cost of $92,433 per ton of NO_X reduced.

A summary of projects awarded under the TCFP by area and fuel type is provided in Appendix 8, *TCFP Projects by Area and Fuel Type*. A complete list of TCFP grant projects is available on the TERP website at www.terpgrants.org.

The latest TCFP grant round closed in June 2020 with $7,736,986 in available funding. TCEQ received six applications totaling $15,893,914 in requested grant funds. TCEQ has selected four projects for award totaling $7,696,070 in grants.

Texas Natural Gas Vehicle Grant Program (TNGVGP)

The TNGVGP, established under THSC Chapter 394, provides grants for projects to replace or repower existing heavy-duty and medium-duty vehicles with natural gas vehicles and engines powered by CNG, LNG, or LPG.

Grant-funded vehicles are required to operate at least 75% of annual use in one or more of the counties included in the Clean Transportation Zone. A map of those counties is included in Appendix 7, *Clean Transportation Zone Counties.*

Since 2012, the TNGVGP has provided $56,682,844 in grants for 145 projects totaling 1,696 tons of projected NO_X reductions at an average cost of $33,426 per ton of NO_X reduced.

A summary of projects awarded under the TNGVGP by area and fuel type is provided in Appendix 9, *TNGVGP Projects by Area and Fuel Type*. A complete list of TNGVGP grant projects is available on the TERP website at www.terpgrants.org.

The latest TNGVGP grant round opened in October 2019 with $15,473,974 in available funding. Eligible projects will be awarded on a first-come, first-served basis through February 2021, or until all available funds are awarded. TCEQ has awarded 11 projects totaling $1,476,416 in grants as of November 2020.

Seaport and Rail Yard Areas Emissions Reduction (SPRY) Program

The SPRY Program (formerly referred to as the Drayage Truck Incentive Program), established under THSC Chapter 386, provides grants for the repower or replacement of drayage vehicles and cargo handling equipment operating at seaport and rail yard facilities located in areas designated as non-attainment (see Appendix 3, *Texas Nonattainment Area Counties*).

Grant-funded vehicles and equipment are required to operate at one or more of the eligible seaports or rail yards for a minimum of 200 days per year. In addition, grant-funded vehicles are required to operate at least 50% of annual use in one or more of the DERI-eligible counties (See Appendix 4, *DERI Program Eligible Counties*).

Since 2015, the SPRY Program has provided $19,930,214 in grants for 89 projects totaling 952 tons of projected NO_X reductions at an average cost of $20,934 per ton of NO_X reduced.

A summary of projects awarded under the SPRY Program by area is provided in Appendix 10, *SPRY Projects by Area.* A complete list of SPRY grant projects is available on the TERP website at www.terpgrants.org.

The latest SPRY Program grant round opened in February 2020 with $9,284,384 in available funding. The program was closed on November 5, 2020 after TCEQ received a sufficient number of applications to award all available funding.

Grants to Provide Alternative Fuels for Transportation

Alternative Fueling Facilities (AFFP) Program

The AFFP, established under THSC Chapter 393, provides grants for the construction, reconstruction, or acquisition of public and private facilities to store, compress, or dispense alternative fuels including CNG, LNG, LPG, biodiesel, hydrogen, methanol (85 percent by volume), and electricity. To be eligible, facilities must be located in the area designated as the Clean Transportation Zone (see Appendix 7, *Clean Transportation Zone Counties*).

Since 2012, the AFFP has provided $20,268,407 for the construction, reconstruction, or acquisition of 129 facilities to store, compress, or dispense alternative fuels in the Clean Transportation Zone.

A summary of projects awarded under the AFFP by area and by fuel type is provided in Appendix 11, *AFFP Projects by Area and Fuel Type*. A complete list of AFFP grant projects is available on the TERP website at www.terpgrants.org.

The latest AFFP grant round closed in March 2020 with $12 million in available funding. TCEQ received 196 applications totaling $15,771,399 in requested grant funds. TCEQ has awarded 160 projects totaling $8,051,893 in grants as of November 2020. TCEQ plans to award additional projects with the $3,948,107 in remaining funding.

Other Grants to Reduce Vehicle Emissions

Texas Clean School Bus (TCSB) Program

The TCSB Program, established under THSC Chapter 390, provides grants statewide for the retrofit or replacement of school buses to reduce children's exposure to diesel exhaust in and around school buses. To be eligible for retrofit or replacement, school buses must be operated on a daily route to and from school.

Since 2008, the TCSB Program has provided $34,558,623, including $4,694,101 in federal funds, for the retrofit of 7,560 school buses. Projects involve the acquisition and installation of emissions-reducing add-on equipment such as closed-crankcase filtration systems and diesel particulate filters or diesel oxidation catalysts on engine of model year 1998 and older.

Since 2018, the TCSB Program has provided $14,362,365 for 71 projects to replace 234 school buses totaling 129 tons of projected NO_X reductions at an average cost of $111,008 per ton of NO_X reduced.

The latest TCSB Program grant round opened on January 8, 2020 with $6,189,000 in available funding. The program was closed on January 30, 2020 after TCEQ received a sufficient number of applications to award all available

funding. TCEQ was able to award all available funding, plus $2.1 million in additional funding, for the replacement of 110 school buses.

A complete list of TCSB grant projects is available on the TERP website at www.terpgrants.org.

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

The LDPLIP, established under THSC Chapter 386, provides rebate grants statewide for the purchase or lease of new light-duty motor vehicles powered by CNG, LPG, or hydrogen fuel cell or other electric drive (plug-in or plug-in hybrid) to encourage the greater use of these vehicles and to stimulate the market for these vehicles and fuels in Texas.

Since 2014, the program has provided $11,755,380 for the purchase or lease of 4,872 vehicles, including $10,924,130 in rebates for 4,607 electric and plug-in electric hybrid vehicles and $831,250 in rebates for 265 natural gas vehicles. A summary of LDPLIP rebates awarded by vehicle make and model is provided in Appendix 12, *LDPLIP Projects by Vehicle Type*.

The most recent LDPLIP grant round opened in September 2019 with $7,736,986 in available rebates. Eligible projects will be awarded on a first-come, first-served basis through January 2021, or until all available funds are awarded. Regardless of the amount of funding available, TCEQ may award no more than 1,000 rebate grants for a combination of CNG and LPG vehicles and 2,000 rebate grants for hydrogen fuel cell or other electric drive (plug-in or plug-in hybrid) vehicles. TCEQ has awarded $2,703,305 in rebates for 1,081 hydrogen fuel cell or other electric drive (plug-in or plug-in hybrid) vehicles and five CNG or LPG vehicles as of November 2020.

Governmental Alternative Fuel Fleet (GAFF) Program

The GAFF Program, established under THSC Chapter 395, provides grants to state agencies and political subdivisions, who operate a fleet of more than 15 vehicles, to help offset the difference in cost of purchasing a new alternative fuel or hybrid vehicles versus a traditional vehicle powered by diesel or gasoline.

SB 1731, 85th Texas Legislature, Regular Session, 2017, created the GAFF Program and authorized TCEQ to award funds under the program if money was appropriated from the TERP Fund for that purpose. The 86th Texas Legislature, Regular Session, 2019, appropriated funds for the GAFF program with HB 1, totaling $6 million for the FY 2020-2021 biennium.

THSC Section 395.010(c) requires TCEQ to establish an online process for the submittal of required GAFF Program application documents. TCEQ began the development of an online application for the submission of TERP grant

applications in FY 2019. The completion and implementation of the online application will coincide with the opening of the GAFF program in Spring 2021.

Prospective applicants are encouraged to visit the TERP website www.terpgrants.org for program updates and information on upcoming workshops and webinars.

Programs to Encourage Energy Efficiency

Energy Efficiency Programs

Under THSC Section 386.057, 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) Section 39.905.
- Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities, established under THSC Section 388.005.
- Texas Building Energy Performance Standards, established under THSC Section 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.

Per TUC Section 39.905, 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 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 Section 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 Comptroller of Public Accounts 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 Section 386.252(a) TCEQ contracts with the ESL for an 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.

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-19-10-10) was published in October 2019 for the period January 2018 through December 2018 (Calendar Year (CY) 2018 Report). The CY 2019 report is anticipated to be published by the end of 2020 and will be available on the ESL website.

The tables below provide information from the CY 2018 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 2018. The savings and emissions reductions for 2019 are based on ESL’s preliminary

projections included in the CY 2018 report. Updated estimates for 2019 will be available in the CY 2019 report. 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 (2018 and 2019)

Program	2018 (MWh/year)	2019* (MWh/year)
Texas Building Energy Performance Standards	5,062,259	6,115,658
Goal for Energy Efficiency	4,209,108	4,555,058
Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities	1,402,040	1,502,632
Renewable Generation - Wind (ERCOT)	19,700,200	53,924,717
Residential Air Conditioner Retrofits	248,448	236,025
Total Integrated Annual Savings	**60,622,055**	**66,334,092**

*The 2019 figures are the ESL's projections through the end of 2019 included in the CY 2018 final report.

Annual NO_x Emissions Reductions (2018 and 2019)

Program	2018 Tons of NO_x	2019* Tons of NO_x
Texas Building Energy Performance Standards	1,662	2,005
Goal for Energy Efficiency	1,410	1,526
Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities	447	482
Renewable Generation - Wind (ERCOT)	22,408	24,312
Residential Air Conditioner Retrofits	83	79
Total Integrated Annual NO_x Emissions Reductions	**26,010**	**28,404**

*The 2019 figures are the ESL's projections through the end of 2019 included in the CY 2018 final report.

Energy-Efficiency and Renewable Energy Programs and the Texas SIP

The programs administered by the PUC and SECO under the mandates of 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.

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 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, 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 Program, established under THSC Chapter 391, provides grants statewide for projects to offset the incremental cost of emissions reductions of pollutants from facilities and other stationary sources. Projects that may be funded under the NTIG include:

- Advanced Clean Energy projects.
- New technology projects that reduce emissions of regulated pollutants from point sources.
- New technology projects that reduce emissions from upstream and midstream oil and gas production, completions, gathering, storage, processing, and transmission activities.
- Electricity storage projects related to renewable energy.

Since 2010, the NTIG Program has provided $11,654,067 to help fund eight projects, five of which involve electricity storage and three of which involve new technology implementation. A complete list of NTIG grant projects is available on the TERP website at www.terpgrants.org.

The latest NTIG grant round closed in November 2020, with $4,642,192 in available funding. TCEQ received eight applications totaling $37,243,551 in requested grant funding. TCEQ expects to award all of the available funding.

Other Programs Included under the TERP

Port Authority Studies and Pilot Projects (PASPP)

The PASPP Program provides grants to port authorities in the DERI-eligible counties for studies and pilot programs to assess incentives that may be implemented to encourage cargo movement that reduces emissions of NO_X and particulate matter (PM). This grant program implements THSC Section 386.252(a)(13). The provision authorizes the agency to use no more than $500,000 each year to fund the studies and pilot programs.

In FY 2018, TCEQ issued the first Request for Letters of Interest and Preliminary Grant Proposals from eligible port authorities in Texas, outlining studies and pilot programs that the port authority would be interested in conducting if awarded a grant. Port Houston submitted the only response letter and preliminary proposal to TCEQ.

Port Houston was awarded $500,000 to conduct a study of incentives to encourage cargo movement that reduces emissions of NO_X and PM at the port. TCEQ reserved the FY 2019 PASPP appropriation of $500,000 for a possible follow-up pilot program by Port Houston if such a program was identified and supported by the study and approved by TCEQ.

Port Houston submitted the grant-funded study entitled "Market Demand Study and Business Case Analysis for Reduction of Emissions through Intermodal Opportunities and Incentives." The study, conducted for Port Houston through subcontract with AECOM, assessed the market demand, business sustainability, and long-term economic viability of five strategies for reducing emissions from cargo movement, including:

- shift road to rail
- shift road to electric shuttle
- shift road to water
- shift road to low/no emission road
- cleaner cargo handling equipment

In FY 2019, Port Houston was awarded an additional $500,000 for the implementation of electric tractors at their container terminals. The implementation would involve operation and evaluation of the equipment and infrastructure to determine whether it meets Port Houston's unique needs. If successful, Port Houston could determine to pursue financial incentives through TERP programs to transition to an electric terminal fleet over the longer term.

In FY 2020, TCEQ issued a second, informal request for interest from eligible port authorities in Texas. TCEQ is currently in the process of reviewing

proposals submitted by port authorities. TCEQ expects to award a second project under the PASSP Program in FY 2020.

Regional Air Monitoring Program

The 82nd Texas Legislature, Regular Session, 2012, amended THSC Chapter 386 to establish a regional air monitoring program in TCEQ's 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 TCEQ on October 21, 2011.

The program was allocated up to $7 million per fiscal year over FY 2012-2013 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 2020 were $21,540,122.

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 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, 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, and TCEQ's conservative evaluation of the potential for human health risk to occur upon exposure to the measured concentrations, TCEQ has concluded that there is no substantial health risk from short-term or long-term exposure to air emissions from natural gas operations.

Air Quality Research Support Program (AQRP)

The AQRP, established under THSC Chapter 387, works to identify and prioritize scientific questions important to air quality management in Texas and funds scientific investigations to provide answers to these questions.

The AQRP program was originally part of the New Technology Research and Development (NTRD) Program. SB 527, 82nd Texas Legislature, Regular Session, 2009, amended the THSC to eliminate the NTRD Program, but retained the air quality research component.

Since 2009, 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 TCEQ and an Advisory Council.

The TERP allocations to this program are determined each fiscal biennium. The allocation for the FY 2020-2021 biennium is $750,000 per fiscal year. The AQRP has provided $16,538,142 in funding for 76 projects by 25 lead entities and numerous collaborating entities.

Some of the major projects that have been sponsored through this program from FY 2010 through FY 2021 include:

- Air quality measurements in the Houston area that quantified continuing progress in reducing emissions of Highly Reactive VOCs.
- 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, biomass burning, and biogenic emissions.
- Air quality measurement programs in the oil and natural gas production region, near the cities of Fort Worth and San Antonio, that examined the role of emissions associated with oil and gas production on ozone formation.
- Improvements to the air quality models used to simulate air pollution events, and to evaluate proposed air quality regulations.
- Analysis of rich data sets collected during air quality field studies, including seven major field campaigns that took place in Texas during 2006, 2009, 2011, 2013, 2017, 2019, and 2020.

Health Effects Studies

The Health Effect Studies implements THSC Section 386.252(a)(8). Each fiscal year, $200,000 has been allocated from the TERP Fund for use by TCEQ in conducting studies on health effects related to air quality and exposure to certain compounds and pollutants. 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 2019 and 2020 are outlined below.

- A quantitative carcinogenicity analysis of inhalation exposure to ethylene oxide was conducted in conjunction with a professor at Texas A&M University. This work contributed to a final carcinogenicity assessment and will also result in a peer-reviewed journal article.
- A set of simulation studies were conducted to evaluate the patterns of results from epidemiology studies that show associations between $PM_{2.5}$ and mortality. These simulations provide insights about whether $PM_{2.5}$ causes mortality. This work is planned to continue in FY 2021 and will result in several peer-reviewed journal articles.
- Studies are planned for FY 2021 to review health-effect studies that have been conducted in Texas, and to evaluate airborne chemical-associated health effects in communities with high potential chemical exposure (e.g. around the Houston Ship Channel).

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 grant programs.

The three levels are listed and described below.

1. The Application Phase requires TCEQ to maintain a uniform process when reviewing applications, verify equipment and technologies, confirm emission reductions and cost-effectiveness calculations, maintain an electronic database, and perform duplicate reviews. Additionally, TCEQ may assign an independent contractor to complete pre-award site visits to ensure applicant compliance with program eligibility requirements.
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, and maintain an electronic database for contract and fiscal information.
3. The Tracking and Reporting Phase requires TCEQ to ensure grantees track usage and report this usage information to 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 strategic on-site audits by an independent contractor, 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

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

During the 86th Texas Legislature, Regular Session, 2019, state lawmakers passed the following bills that impact the administration and programs of the TERP Program:

- **House Bill (HB) 3745** amended the THSC to establish the TERP "Fund" as a trust fund, outside of the state treasury, to be held by the comptroller and administered by TCEQ as trustee. The Fund consists of money deposited from the TERP fees and from grant money recaptured under the TERP programs. TCEQ can use money in the Fund only as directed by THSC Chapter 386, relating to the TERP programs, allocations, and criteria. TCEQ is required to transfer the unencumbered balance of the Fund to the credit of the TERP Account No. 5071 no later than the 30th day after the last day of each state fiscal biennium. The bill also increased the allocation amount that may be used for administrative costs from $8 million to $16 million. HB 3745 also amended the Texas Tax and Transportation Codes to extend the TERP Fees until all areas in Texas have been designated by the EPA as in attainment or unclassifiable/attainment, or EPA has approved a re-designation substitute making a finding of attainment. HB 3745 became effective August 30, 2019. The creation of the TERP fund and the increase in the amount allocated for administrative costs will not be effective until September 1, 2021.
- **HB 1627** amended the THSC to remove Victoria County from the list of Affected Counties eligible for certain grants under the TERP. HB 1627 was effective immediately upon signature by the Governor on May 23, 2019.
- **HB 1346** amended the THSC to change the criteria under the TERP DERI Programs and to allow TCEQ to set the minimum percentage of miles traveled or hours of operation required to take place in a DERI-eligible county as low as 55%. HB 1346 became effective September 1, 2019.
- **HB 1** appropriated $6 million in funds for the GAFF Program in FY 2020-2021. SB 1731, 85th Texas Legislature, Regular Session, created the GAFF Program and authorized TCEQ to award funds under the program if

money was appropriated from the TERP Fund for that purpose. However, funds were not appropriated for the program in the FY 2018-2019 biennium.

To ensure the successful implementation of these newly enacted laws, TCEQ has:

- Adopted rule and guideline changes to implement HB 1627 and 1346.
- Established the Air Grants Division in recognition of the significant increase in funding for the TERP programs as a result of HB 3745.
- Begun the development of a more robust data management system to better accommodate the growing number of projects awarded under the TERP programs.
- Begun the development of an online application for the submission of TERP grant applications.

Cost-Effectiveness

The 2015 U.S. Department of Transportation report titled "Congestion Mitigation and Air Quality (CMAQ) Improvement Program" identified idle reduction and heavy vehicle diesel engine replacements as the most cost-effective of several strategies to reduce NO_X emissions from on-road sources. Median costs of these practices are under $20,000 per ton of NO_X reduced. Other cost-effective NO_X emission reduction strategies for this sector were park and ride and transit service expansion that were on average five to six times more expensive. Construction related congestion mitigation strategies identified in the report included intersection improvements and roundabouts with median costs per ton of NO_X reduced of $744,000 and $3,000,000, respectively. Based on historical grant awards, the DERI Program is the most cost-effective TERP program at an average cost of $6,257 per ton of NO_X reduced as of August 2020.

TCEQ expects the average cost per ton of NO_X reduced in future grant rounds to increase from the historical averages for the program. Recent projects under the TERP programs increasingly include the upgrade or replacement of vehicles and equipment with engines that already meet more stringent NO_X emissions standards than past projects. Because the difference in NO_X emissions rates between old engines and new engines is often less today than it was under past grant rounds, recent projects generally result in fewer NO_X reductions than past projects. As a result, TCEQ must pay more per ton of NO_X reduced to continue to ensure that grant awards are high enough to incentivize participation, and to achieve the amount of NO_X reductions that have been achieved under the grant programs in the past.

The statutory limits on the maximum cost-effectiveness of a project under the DERI Program were removed by the Texas Legislature in 2013, leaving TCEQ

with authority to set limits as needed to address program goals and objectives. From FY 2015 through FY 2017, the cost per ton limits were set by 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. Beginning in FY 2018, the cost per ton limits have been set by TCEQ at $12,500 per ton of NO_X reduced for marine and locomotive projects and $17,500 per ton of NO_X reduced for all other projects.

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

Role of TERP Going Forward

In October 2015, the EPA lowered the NAAQS for ground-level ozone from 75 parts per billion (ppb) to 70 ppb. On November 6, 2017, June 4, 2018, and July 25, 2018, the EPA published final designations for all of the areas in Texas for the 2015 ozone NAAQS, including "attainment/ unclassifiable" designations for most areas of Texas. The EPA published nonattainment designations for a nine-county DFW area, a six-county HGB area, and Bexar County in the San Antonio Area. All three areas were classified as "marginal" nonattainment. Marginal nonattainment areas are required to meet the 2015 ozone standard by the end of 2020. If the areas do not attain by the end of 2020, the EPA may reclassify them to moderate nonattainment. The eight-county HGB area and 10-county DFW area remain designated nonattainment for the 2008 ozone NAAQS of 75 ppb and are currently classified as serious nonattainment. If the areas do not meet the 2008 ozone standard by the end of 2020, the EPA may reclassify them to severe nonattainment.

TCEQ estimates mobile sources to be responsible for as much as 75% of NO_X emissions in certain non-attainment areas in Texas. NO_X emissions react with VOCs in the presence of sunlight to form ground-level ozone. Unlike point and stationary sources of NO_X emissions, mobile sources are not under the regulatory oversight of TCEQ and are not subject to permitting requirements. The TERP, however, is able to realize significant reductions of NO_X emissions from mobile sources by providing financial incentives for the early retirement of heavy-duty vehicles and equipment, particularly those with large diesel engines. Retired vehicles and equipment are rendered permanently inoperable and are replaced with newer, cleaner models that grantees commit to operating in the non-attainment areas and other areas of concern.

The TERP Programs will continue to support attainment demonstrations in SIP revisions as either an existing control measure; as a long-term strategy for reasonable progress; or as additional measures called “Weight of Evidence,” which include activities that are expected to further reduce ozone levels in the

nonattainment areas and supplement and corroborate model results and support the adequacy of a proposed control strategy.

TCEQ continues to be available to provide information that may be needed to assist the legislature in determining the future role of the TERP to help improve and maintain good air quality in areas throughout the state.

Appendix 1. TERP Fund

5071 Texas Emissions Reduction Plan	FY 2019	FY 2020[1]	Est FY 2021[2]
Beginning Balance (Unencumbered)	$1,500,704,347	$1,648,306,403	$1,861,370,480
REVENUE			
3004 Heavy-Duty Motor Vehicle Sales, Lease, & Use	$19,012,678	$17,185,625	$16,212,000
3012 Motor Vehicle Certificate of Title	$145,659,518	$138,851,750	$152,334,000
3014 Commercial Motor Vehicle Registration	$13,815,307	$12,840,952	$11,689,000
3016 Motor Vehicle Sales & Seller Finance	$30,860	$25,664	$31,000
3020 Commercial Motor Vehicle Inspection	$6,700,530	$6,384,312	$5,912,000
3102 Diesel Equipment Sales, Lease, & Use	$77,521,341	$76,820,035	$67,646,000
3714 Judgements	$9,789	$4,100	
Subtotal: Actual/Estimated Revenue	$262,750,023	$252,112,438	$253,824,000
Total Available	**$1,763,454,370**	**$1,900,418,841**	**$2,115,194,480**
DEDUCTIONS:			
Regular Appropriation to TCEQ	($111,754,395)	($35,905,625)	($118,841,579)
Statewide Cost Allocation Plan	($667,016)	($393,993)	($589,197)
Transfer - Employee Benefits	($1,395,271)	($1,388,823)	($1,424,174)
Transfer – Retirement Benefits	($386,222)	($406,582)	($428,285)
Transfer – Reimburse TWC for Unemployment Costs	($1,502)	($9,776)	
HB 37, 79th Session - Transfer to Fund 151	($500,000)	($500,000)	($500,000)
Article III – Appropriation to the Energy Systems Laboratory, Texas A&M Engineering Experiment Station	($443,561)	($443,562)	($443,561)
TOTAL DEDUCTIONS	**($115,147,967)**	**($39,048,361)**	**($122,226,796)**
Ending Fund / Account Balance	**$1,648,306,403**	**$1,861,370,480**	**$1,992,967,684**

[1]Amounts listed for FY 2020 are still subject to change as the fiscal year finances are reconciled.
[2]Amounts listed for FY 2021 are estimated.

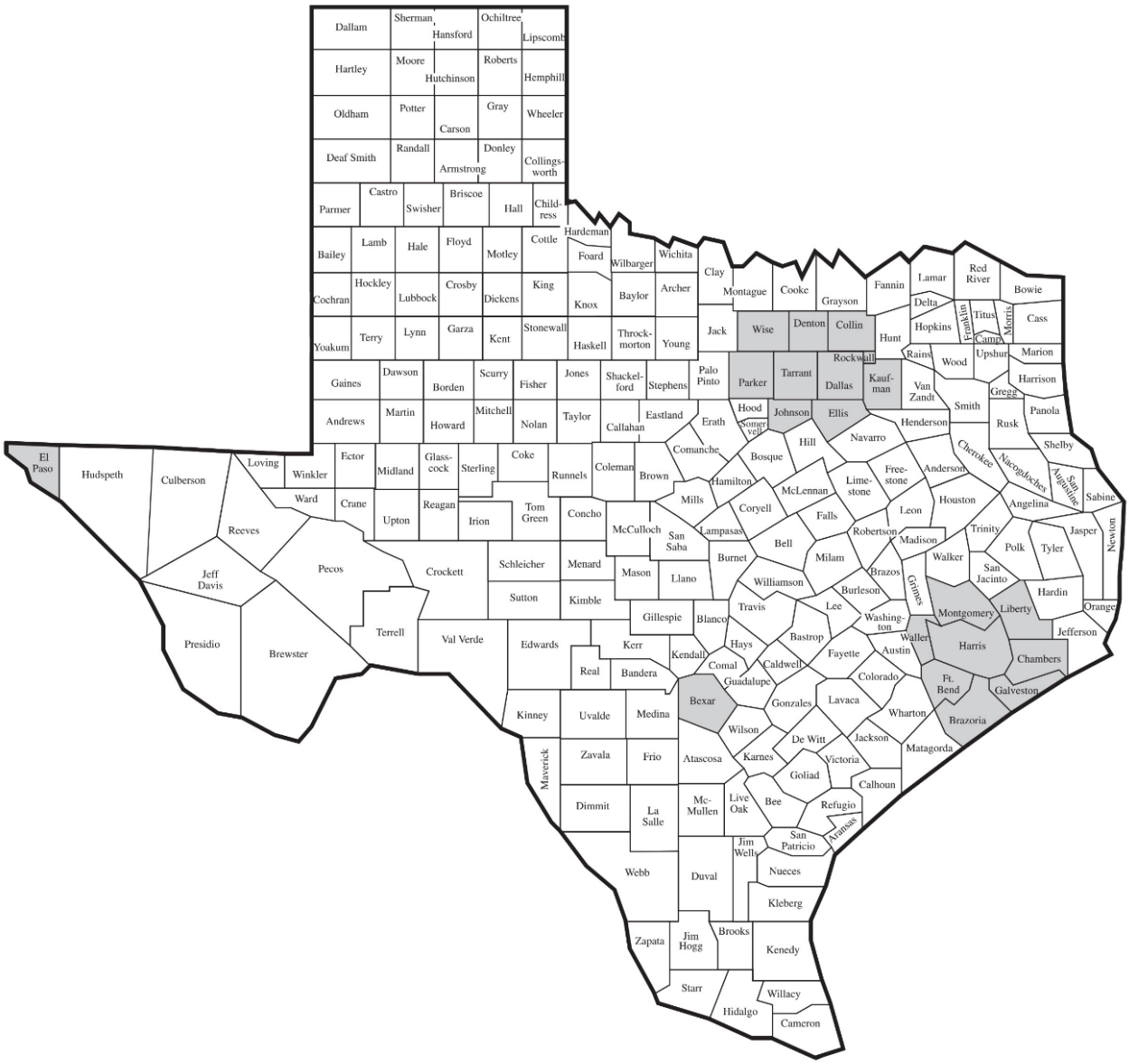
Appendix 2. TERP Funding Allocation

Program	FY 2020/2021 Annual Allocation	Statutory Allocation Percentage (%)[1]
TCEQ Administration	$8,000,000/FY	not more than $8,000,000/FY
Texas Clean School Bus Program	$3,094,795/FY	4%
New Technology Implementation Grants	$2,321,096/FY	3%*; with at least $1 million set aside for battery storage*
Texas Clean Fleet Program	$3,868,493/FY	5%
Regional Air Monitoring Program	$3,000,000/FY	not more than $3,000,000/FY
Texas Natural Gas Vehicle Grant Program	$7,736,987/FY	10%
Alternative Fueling Facilities Program	$6,000,000/FY	not more than $6,000,000/FY
Health Effects Study	$200,000/FY	not more than $200,000/FY
Research	$750,000/FY	not more than $750,000/FY
Energy Systems Laboratory Contract	$216,000/FY	not more than $216,000/FY
Seaport and Rail Yards Emissions Reduction Program	$ 4,642,192/FY	6%
Light-Duty Motor Vehicle Purchase or Lease Incentive Program	$3,868,493/FY	5%
Port Authorities Studies & Pilot Projects	$500,000/ FY	not more than $500,000/FY
Governmental Alternative Fuel Fleet Program	$3,000,000/FY	to the extent that money is appropriated
Diesel Emission Reduction Incentive Programs	$30,177,381 (FY 20) $30,173,711 (FY 21)	balance of TCEQ appropriation
TCEQ TERP Appropriation	**$77,375,437 (FY 20)** **$77,371,767 (FY 21)**	

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

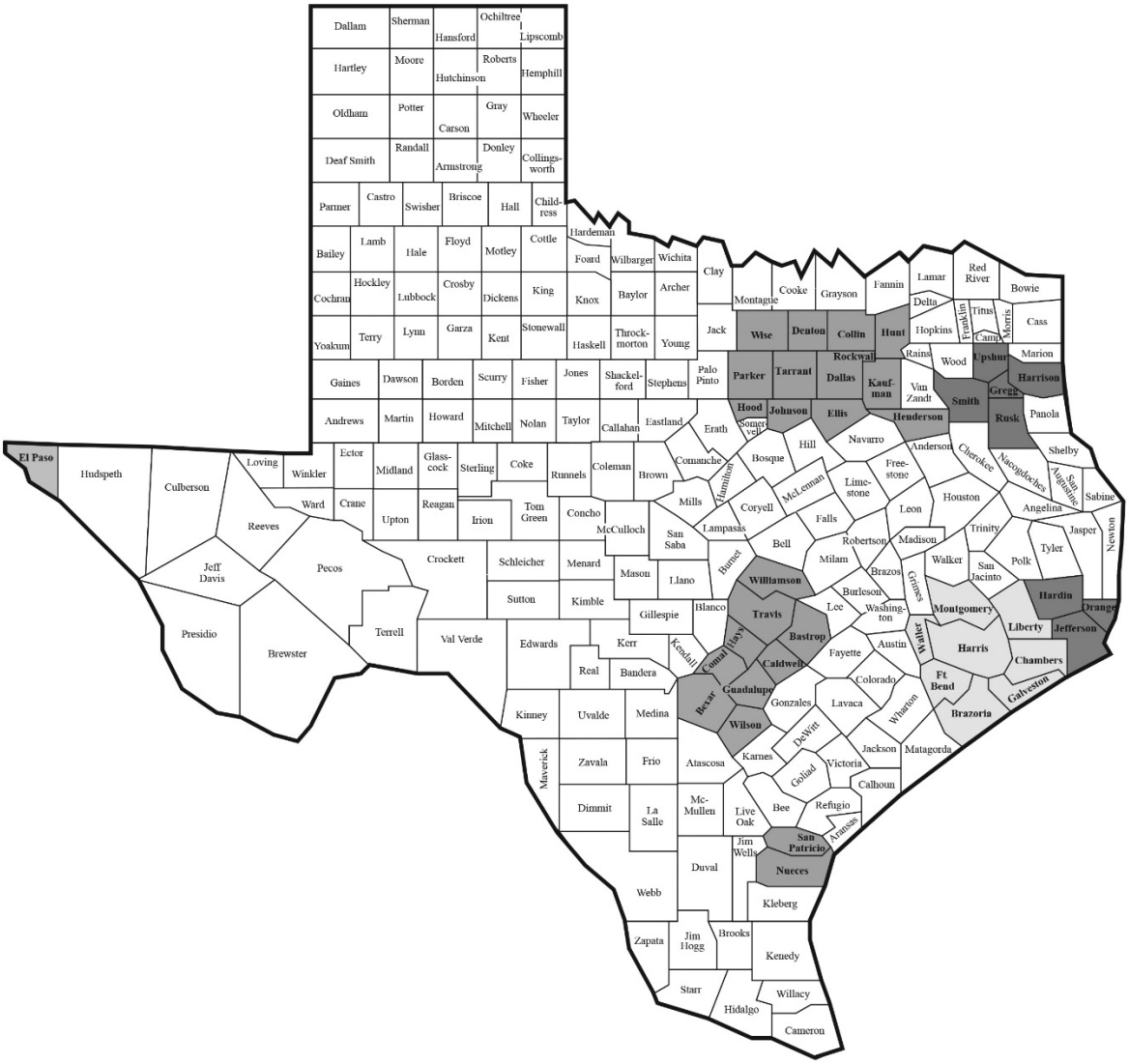
Appendix 3. Texas Nonattainment Area Counties

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
Bexar County Eight-Hour Ground-Level Ozone Nonattainment Area	Bexar County
City of El Paso Particulate Matter (PM_{10}) Nonattainment Area	El Paso County (for purposes of TERP eligibility, TCEQ includes the entire county)



Appendix 4. DERI Program Eligible Counties

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



Appendix 5. DERI Program Projects by Area

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

Projects by Area
2001 through August 2020

(Does not include projects funded and subsequently canceled)

Area	Total Number of Projects	Total Number of Activities	Total Grant Amount[1,2]	Total NO_X Reduced (Tons)[2]	Average Cost Per Ton of NO_X Reduced[3]	Total Tons Per Day of NO_X Reduced 2020	Total Tons Per Day of NO_X Reduced 2021	Total Tons Per Day of NO_X Reduced 2022	Total Tons Per Day of NO_X Reduced 2023
Houston/Galveston/ Brazoria	4,448	7,424	$472,850,674	80,053	$5,907	7.71	7.37	7.12	6.17
Dallas/Fort Worth	4,735	7,663	$392,570,091	64,095	$6,125	7.17	6.73	6.14	5.13
Austin	1,178	1,761	$91,723,810	10,840	$8,461	2.26	2.26	2.05	1.87
San Antonio	1,151	1,673	$88,769,395	11,300	$7,856	1.92	1.90	1.81	1.57
Beaumont/Port Arthur	273	546	$48,420,904	8,966	$5,400	0.96	0.95	0.93	0.83
Tyler/Longview	216	313	$32,686,412	5,134	$6,366	0.07	0.07	0.17	0.14
Corpus Christi	91	266	$11,028,029	1,642	$6,714	0.36	0.36	0.35	0.31
Victoria	93	104	$5,515,588	586	$9,419	0.27	0.28	0.27	0.25
El Paso	146	205	$4,170,912	817	$5,106	0.05	0.05	0.06	0.06
	12,331	**19,955**	**$1,147,735,817**	**183,434**	**$6,257**	**20.78**	**19.97**	**18.91**	**16.34**

Note: The number of projects and number of activities are based on the primary area of a project. The grant amount, total NO_X reduced, and cost per ton of NO_X reduced are apportioned to all areas of use associated with a project.

[1]The total grant amount includes $12,425,362 million in federal American Recovery and Reinvestment Act funding awarded in 2010; resulting in 1,322 tons of NO_X reduced.

[2]Totals have been rounded to the nearest whole number.

[3]The average cost per ton of NO_X reduced equals the total grant amount divided by the total NO_X reduced. The average cost per ton of NO_X reduced was calculated using raw numbers and then rounded to the nearest whole number.

Appendix 6. DERI Program Projects by Emissions Source

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

Projects by Emissions Source
2001 through August 2020

(Does not include projects funded and subsequently canceled)

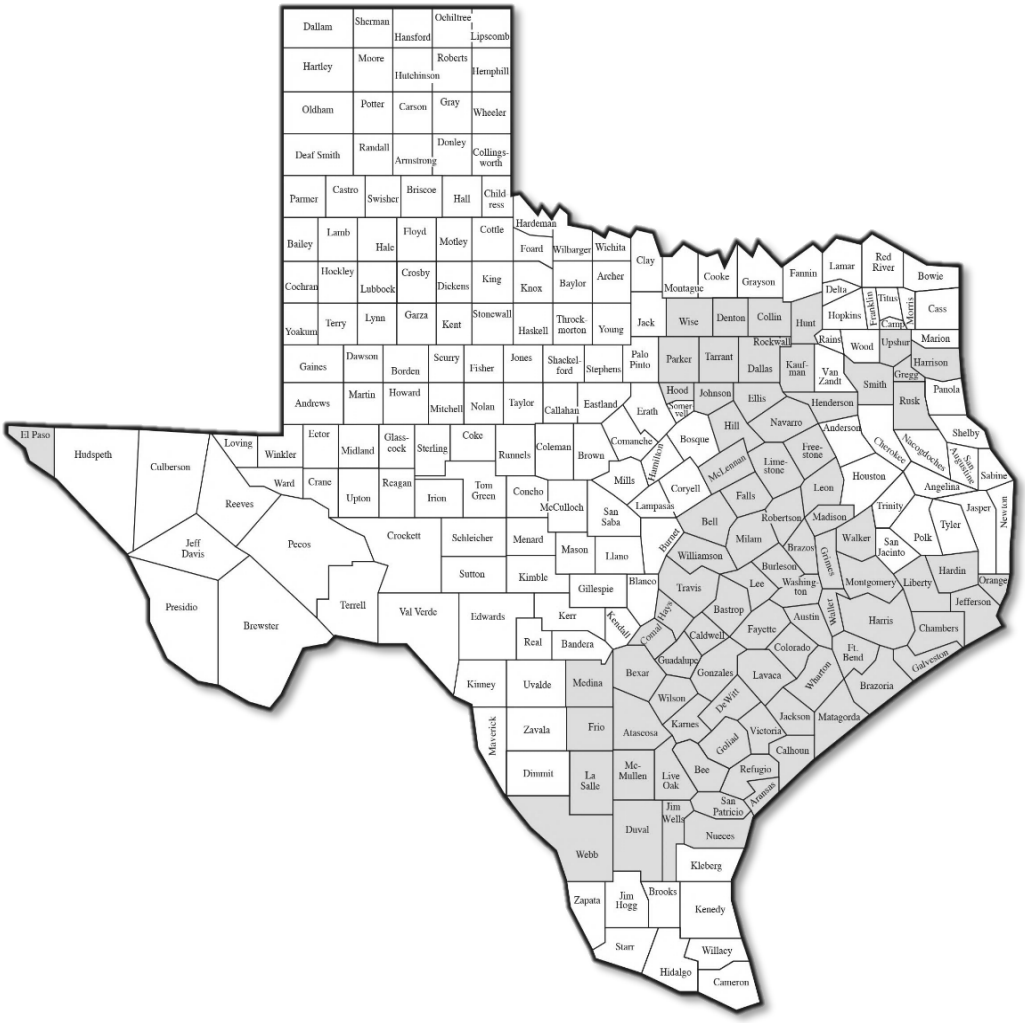
Emission Source	Total Number of Projects	Total Number of Activities	Total Grant Amount[1,2]	Total NO_X Reduced (Tons)[2]	Average Cost Per Ton of NO_X Reduced[3]	Total Tons Per Day of NO_X Reduced 2020	Total Tons Per Day of NO_X Reduced 2021	Total Tons Per Day of NO_X Reduced 2022	Total Tons Per Day of NO_X Reduced 2023
On-Road	5,182	9,401	$456,041,995	62,160	$7,337	8.60	8.23	7.68	6.00
Non-Road	6,929	9,611	$407,121,221	50,448	$8,070	8.38	8.12	7.30	6.62
Locomotive	51	307	$219,196,820	51,185	$4,282	2.05	1.97	2.28	2.28
Marine	90	510	$51,715,041	15,306	$3,379	1.66	1.56	1.57	1.36
Stationary	79	126	$13,660,741	4,335	$3,151	0.09	0.08	0.08	0.07
	12,331	**19,955**	**$1,147,735,817**	**183,434**	**$6,257**	**20.78**	**19.97**	**18.91**	**16.34**

[1]The total grant amount includes $12,425,362 million in federal American Recovery and Reinvestment Act funding awarded in 2010; resulting in 1,322 tons of NO_X reduced.
[2]Totals have been rounded to the nearest whole number.
[3]The average cost per ton of NO_X reduced equals the total grant amount divided by the total NO_X reduced. The average cost per ton of NO_X reduced was calculated using raw numbers and then rounded to the nearest whole number.

Appendix 7. Clean Transportation Zone Counties

Atascosa	Comal	Gonzales	Jim Wells	McMullen	Tarrant
Austin	Dallas	Gregg	Johnson	Medina	Travis
Bastrop	Denton	Grimes	Karnes	Milam	Upshur
Bee	DeWitt	Guadalupe	Kaufman	Montgomery	Victoria
Bell	Duval	Hardin	La Salle	Navarro	Walker
Bexar	El Paso	Harris	Lavaca	Nueces	Waller
Brazos	Falls	Hays	Leon	Parker	Webb
Burleson	Fayette	Henderson	Liberty	Refugio	Wharton
Caldwell	Fort Bend	Hill	Limestone	Robertson	Williamson
Calhoun	Freestone	Hood	Live Oak	Rockwall	Wilson
Chambers	Frio	Hunt	Madison	Rusk	Wise
Collin	Galveston	Jackson	Matagorda	San Patricio	

Note – The Clean Transportation Zone 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 8. TCFP Projects by Area and Fuel Type

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

Projects by Area and Fuel Type
2009 through August 2020

(Does not include projects funded and subsequently canceled)

Area	Total Number of Projects	Total Number of Activities	Total Grant Amount[1]	Total NO_X Reduced (Tons)[1]	Average Cost Per Ton of NO_X Reduced[2]	Total Tons Per Day of NO_X Reduced 2020	Total Tons Per Day of NO_X Reduced 2021	Total Tons Per Day of NO_X Reduced 2022	Total Tons Per Day of NO_X Reduced 2023
Houston/Galveston/ Brazoria	10	237	$21,028,667	187	$112,412	0.08	0.08	0.08	0.07
Dallas/Fort Worth	10	202	$17,835,047	252	$70,691	0.13	0.13	0.06	0.04
Austin	8	182	$15,778,570	155	$101,549	0.01	0.01	0.01	0.01
San Antonio	3	44	$6,071,757	64	$95,408	0.04	0.04	0.05	0.05
Beaumont/Port Arthur	1	17	$912,608	8	$109,465	0.01	0.01	0.01	0.01
	32	**682**	**$61,626,649**	**667**	**$92,433**	**0.27**	**0.27**	**0.21**	**0.18**

Note: The number of projects and number of activities are based on the primary area of a project. The grant amount, total NO_X reduced, and cost per ton of NO_X reduced are apportioned to all areas of use associated with a project.

Fuel Type[3]	Total Number of Projects	Total Number of Activities	Total Grant Amount[1]	Total NO_X Reduced (Tons)[1]	Average Cost Per Ton of NO_X Reduced[2]	Total Tons Per Day of NO_X Reduced 2020	Total Tons Per Day of NO_X Reduced 2021	Total Tons Per Day of NO_X Reduced 2022	Total Tons Per Day of NO_X Reduced 2023
CNG	14	295	$37,355,801	436	$85,651	0.20	0.20	0.15	0.13
LPG	16	323	$18,838,880	179	$105,069	0.06	0.06	0.06	0.04
Diesel Hybrid	1	55	$3,181,967	40	$80,506	< 0.01	< 0.01	< 0.01	< 0.01
Electricity	1	9	$2,250,000	12	$191,424	< 0.01	< 0.01	0.01	0.01
	32	**682**	**$61,626,649**	**667**	**$92,433**	**0.27**	**0.27**	**0.21**	**0.18**

[1]Totals have been rounded to the nearest whole number.
[2]The average cost per ton of NO_X reduced equals the total grant amount divided by the total tons of NO_X reduced. The average cost per ton of NO_X reduced was calculated using raw numbers and then rounded to the nearest whole number.
[3]CNG= Compressed Natural Gas, LPG= Liquefied Petroleum Gas

Appendix 9. TNGVGP Projects by Area and Fuel Type

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

Projects by Area and Fuel Type
2012 through August 2020

(Does not include projects funded and subsequently canceled)

Area	Total Number of Projects	Total Number of Activities	Total Grant Amount[1]	Total NO_X Reduced (Tons)[1]	Average Cost Per Ton of NO_X Reduced[2]	Total Tons Per Day of NO_X Reduced 2020	Total Tons Per Day of NO_X Reduced 2021	Total Tons Per Day of NO_X Reduced 2022	Total Tons Per Day of NO_X Reduced 2023
Dallas/Fort Worth	68	557	$20,568,270	611	$33,653	0.32	0.16	0.16	0.12
Clean Transportation Zone	24	135	$13,163,863	423	$31,086	0.10	0.02	0.03	0.03
Houston/Galveston/Brazoria	30	310	$12,814,447	332	$38,641	0.12	0.05	0.06	0.04
San Antonio	7	80	$4,348,691	137	$31,676	0.04	0.04	0.04	0.03
Austin	7	75	$3,508,264	95	$36,893	0.04	0.03	0.03	0.03
El Paso	5	38	$1,123,024	46	$24,377	0.02	0.01	0.01	0.01
Tyler/Longview	2	12	$776,560	33	$23,527	0.03	0.01	0.01	<0.01
Corpus Christi	1	1	$249,162	10	$26,102	0.01	0.01	0.01	<0.01
Beaumont/Port Arthur	1	2	$75,221	5	$14,512	<0.01	<0.01	<0.01	<0.01
Victoria	0	0	$55,341	3	$16,869	<0.01	<0.01	<0.01	<0.01
	145	**1,210**	**$56,682,844**	**1,696**	**$33,426**	**0.68**	**0.33**	**0.35**	**0.24**

Note: The number of projects and number of activities are based on the primary area of a project. The grant amount, total NO_X reduced, and cost per ton of NO_X reduced are apportioned to all areas of use associated with a project.

Fuel Type[3]	Total Number of Projects	Total Number of Activities	Total Grant Amount[1]	Total NO_X Reduced (Tons)[1]	Average Cost Per Ton of NO_X Reduced[2]	Total Tons Per Day of NO_X Reduced 2020	Total Tons Per Day of NO_X Reduced 2021	Total Tons Per Day of NO_X Reduced 2022	Total Tons Per Day of NO_X Reduced 2023
CNG	110	911	$41,164,352	1,223	$33,661	0.63	0.28	0.29	0.19
LNG	9	131	$6,812,865	262	$26,045	0.01	0.01	0.01	0.01
LNG/Diesel	8	61	$5,430,000	162	$33,471	<0.01	<0.01	<0.01	<0.01
LPG	18	107	$3,275,627	49	$66,814	0.04	0.04	0.05	0.05
	145	**1,210**	**$56,682,844**	**1,696**	**$33,426**	**0.68**	**0.33**	**0.35**	**0.24**

[1]Totals have been rounded to the nearest whole number.
[2]The average cost per ton of NO_X reduced equals the total grant amount divided by the total tons of NO_X reduced. The average cost per ton of NO_X reduced was calculated using raw numbers and then rounded to the nearest whole number.
[3]CNG= Compressed Natural Gas, LNG= Liquefied Natural Gas, LPG= Liquefied Petroleum Gas

Appendix 10. SPRY Projects by Area

Texas Emissions Reduction Plan (TERP)
Seaport and Rail Yard Areas Emissions Reduction (SPRY) Program

Projects by Area
2015 through August 2020

(Does not include projects funded and subsequently canceled)

Area	Total Number of Projects	Total Number of Activities	Total Grant Amount[1]	Total NO_X Reduced (Tons)[1]	Average Cost Per Ton of NO_X Reduced[2]	Total Tons Per Day of NO_X Reduced 2020	Total Tons Per Day of NO_X Reduced 2021	Total Tons Per Day of NO_X Reduced 2022	Total Tons Per Day of NO_X Reduced 2023
Houston/Galveston/Brazoria	77	224	$18,432,760	884	$20,840	0.34	0.34	0.40	0.54
Dallas/Fort Worth	5	29	$1,176,460	54	$21,935	0.02	0.04	0.04	0.02
San Antonio	6	6	$198,405	8	$24,975	<0.01	<0.01	0.01	0.01
El Paso	1	2	$109,745	5	$20,000	<0.01	<0.01	<0.01	<0.01
Beaumont/Port Arthur	0	0	$12,844	1	$25,000	<0.01	<0.01	<0.01	<0.01
	89	**261**	**$19,930,214**	**952**	**$20,934**	**0.36**	**0.38**	**0.45**	**0.57**

Note: The number of projects and number of activities are based on the primary area of a project. The grant amount, total NO_X reduced, and cost per ton of NO_X reduced are apportioned to all areas of use associated with a project.
[1]Totals have been rounded to the nearest whole number.
[2]The average cost per ton of NO_X reduced equals the total grant amount divided by the total tons of NO_X reduced. The average cost per ton of NO_X reduced was calculated using raw numbers and then rounded to the nearest whole number.

Appendix 11. AFFP Projects by Area and Fuel Type

Texas Emissions Reduction Plan (TERP)
Alternative Fueling Facilities Program (AFFP)

Projects by Area and Fuel Type
2012 through August 2020

(Does not include projects funded and subsequently canceled)

Note: Totals include projects funded under the previous Clean Transportation Triangle Program that was incorporated into the AFFP in FY 2018.

Area	Number of Projects	Grant Amount
Dallas/Fort Worth	50	$6,963,814
Houston/Galveston/Brazoria	42	$6,453,400
Austin	22	$2,808,694
Clean Transportation Zone	5	$1,618,953
San Antonio	7	$1,387,490
El Paso	1	$600,000
Tyler/Longview	1	$400,000
Victoria	1	$36,056
Total	**129**	**$20,268,407**

Fuel Type[1]	Number of Projects	Grant Amount
CNG	36	$14,156,614
Electricity	75	$2,256,488
CNG/LNG	4	$1,700,000
Biodiesel/Electricity	3	$848,325
CNG/Electricity	1	$570,005
Biodiesel	4	$463,449
LPG	6	$273,527
Total	**129**	**$20,268,407**

[1]CNG= Compressed Natural Gas, LNG= Liquefied Natural Gas, LPG= Liquefied Petroleum Gas

Appendix 12. LDPLIP Projects by Vehicle Type

Texas Emissions Reduction Plan (TERP)
Light Duty Purchase or Lease Incentive Program (LDPLIP)

Projects by Vehicle Make and Model
2014 through August 2020

Fuel Type	Vehicle Make & Model	Number of Projects	Grant Amount
Natural Gas	Chevrolet Express 2500	52	$130,000
Natural Gas	Chevrolet Silverado 1500	3	$12,500
Natural Gas	Chevrolet Silverado 2500	27	$67,500
Natural Gas	Chevrolet Tahoe	1	$2,500
Natural Gas	Dodge Ram 2500	1	$2,500
Natural Gas	Ford F150	111	$351,250
Natural Gas	Ford F150 2WD FFV Base Payload LT	1	$5,000
Natural Gas	Ford F150 Crew XL	6	$30,000
Natural Gas	Ford F150 Pickup 2WD/4WD	1	$5,000
Natural Gas	Ford F250	32	$142,500
Natural Gas	Ford F250 Ex Cab	1	$5,000
Natural Gas	Ford Transit Connect	1	$5,000
Natural Gas	Ford X1C SuperCab 4x2	1	$5,000
Natural Gas	GMC Terrain	26	$65,000
Natural Gas	Honda Civic Nat Gas	1	$2,500
Electricity	Audi A3 e-tron	8	$20,000
Electricity	Audi e-Tron (Quattro)	95	$225,820
Electricity	Audi Q5 PHEV Q5	10	$25,000
Electricity	BMW 330e	70	$174,165
Electricity	BMW 530e	105	$262,500
Electricity	BMW 740e	2	$5,000
Electricity	BMW 740Xe	1	$2,500
Electricity	BMW 745e	2	$5,000
Electricity	BMW i3	150	$331,250
Electricity	BMW i3 BEV	20	$47,495
Electricity	BMW i3 Rex	117	$271,450
Electricity	BMW i8	10	$21,875
Electricity	BMW i8 Coupe	2	$4,165
Electricity	BMW X3 xDrive30eX3 xDrive	10	$25,000
Electricity	BMW X5 xDrive40e	1	$2,500
Electricity	BMW X5 xDrive45e	1	$2,500
Electricity	BMW X540e	21	$52,500
Electricity	Cadillac CT6 Plug-In	8	$20,000
Electricity	Cadillac ELR	43	$100,000
Electricity	Chevrolet Bolt EV	530	$1,325,000
Electricity	Chevrolet Pacifica	1	$2,500
Electricity	Chevrolet Volt	662	$1,637,500
Electricity	Chrysler Pacifica	268	$669,165
Electricity	Ford C-Max Energi	115	$259,375
Electricity	Ford Focus BEV	28	$64,375
Electricity	Ford Focus Electric	1	$2,500
Electricity	Ford Fusion Energi	159	$366,875
Electricity	Honda Clarity	337	$842,500
Electricity	Hyundai Ioniq	2	$5,000
Electricity	Hyundai Sonata	1	$2,500

Fuel Type	Vehicle Make & Model	Number of Projects	Grant Amount
Electricity	Jaguar I-Pace	42	$104,165
Electricity	Kia Niro	43	$107,500
Electricity	Kia Niro EV	38	$95,000
Electricity	Kia Optima	1	$2,500
Electricity	Kia Soul EV	2	$5,000
Electricity	Lincoln Aviator PHEV	2	$5,000
Electricity	Mercedes-Benz GLC 350e-4M	1	$2,500
Electricity	Mercedes-Benz GLE550e-4M	1	$2,500
Electricity	Mercedes-Benz Smart	26	$50,000
Electricity	MINI SE Countryman All 4	12	$30,000
Electricity	MINI SE Countryman All-4	19	$47,500
Electricity	MINI SE Hardtop	8	$20,000
Electricity	Mitsubishi i-MiEV	8	$20,000
Electricity	Mitsubishi Outlander PHEV	58	$145,000
Electricity	Mitsubishi Outlander PHEV GT S-AWC	6	$15,000
Electricity	Mitsubishi Outlander PHEV SEL S-AWC	8	$20,000
Electricity	Nissan Leaf	1,263	$2,753,955
Electricity	Porsche 918 Spyder	1	$2,500
Electricity	Porsche Cayenne	1	$2,500
Electricity	Porsche Cayenne	2	$5,000
Electricity	Porsche Cayenne S e-Hybrid	1	$2,500
Electricity	Porsche Panamera Hybrid	6	$15,000
Electricity	Porsche Panamera PHEV	5	$12,500
Electricity	Porsche Taycan 4S	5	$12,500
Electricity	Smart Fortwo Coupe	3	$7,500
Electricity	Toyota Prime	180	$450,000
Electricity	Volvo S60 T8 AWD	5	$12,500
Electricity	Volvo S90	1	$2,500
Electricity	Volvo S90 T8	5	$12,500
Electricity	Volvo S90 T8 AWD	1	$2,500
Electricity	Volvo XC60 T8	35	$87,500
Electricity	Volvo XC60 T8 AWD	13	$32,500
Electricity	Volvo XC90	2	$5,000
Electricity	Volvo XC90 T8	4	$10,000
Electricity	Volvo XC90 T8 AWD	19	$47,500
Total		**4,872**	**$11,755,380**