Texas Emissions Reduction Plan Biennial Report (2023-2024)

Report to the 89th Texas Legislature

Prepared by
Air Grants Division

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

Contents

Summary

Texas Emissions Reduction Plan

In 2001, the 77th Texas Legislature enacted Senate Bill (SB) 5, establishing the Texas Emissions Reduction Plan (TERP) under Texas Health and Safety Code (THSC) Chapter 386. Under THSC Section 386.052(b), the statutory objectives of 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.

The Texas Commission on Environmental Quality (TCEQ) produced this Texas Emissions Reduction Plan biennial report to fulfill the requirements of THSC Sections 386.057, 386.116(d), and 395.014.

Revenue and Funding

TERP is funded from fees and surcharges on obtaining a certificate of vehicle title for all vehicles, the purchase or lease of heavy-duty vehicles and equipment, and registration and inspection of commercial vehicles. Revenue into the TERP Trust during fiscal year (fiscal or FY) 2024-2025 biennium is projected to be $518 million. A projected $336 million will be available for TERP programs and administration, after the statutorily required transfer of no less than 35% of the fund to the Texas Highway Fund for the Texas Department of Transportation (TXDOT) to implement congestion mitigation projects.

Program Highlights

TERP includes incentive funding for a variety of programs. The primary TERP programs provide funding 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 sources.
- Fund air monitoring in the North Texas region.
- Establish energy efficiency programs.

TERP Program Highlights

Diesel Emissions Reduction Incentive Program

Since 2001, the Diesel Emissions Reduction Incentive Program has provided over $1.3 billion to replace or upgrade 21,679 vehicles and pieces of equipment. These projects will reduce NO_x in the nonattainment areas and other affected counties by 191,068 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 $140 million to replace or repower 1,982 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 2,468 tons.

Seaport and Rail Yard Areas Emissions Reduction Program

Since 2015, the Seaport and Rail Yard Areas Emissions Reduction Program has provided over $37 million to replace 468 drayage vehicles and pieces of cargo handling equipment operating at seaport and rail yard facilities in nonattainment areas. These projects will reduce NO_x in those nonattainment areas and other affected counties by 1,633 tons.

Alternative Fueling Facilities Program

Since 2012, the Alternative Fueling Facilities Program has provided over $31 million to construct or reconstruct 318 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 $82 million, including over $4 million in federal funds, to retrofit or replace 8,271 school buses in Texas.

New Technology Implementation Grant Program

Since 2010, the New Technology Implementation Grant Program has provided over $22 million to reduce stationary source emissions and incentivize the installation of electricity storage related to renewable energy.

Port Authority and Studies Pilot Projects Program

Since 2018, the Port Authority and Studies Pilot Projects Program has provided over $2 million to Port Authorities in Texas 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 through its statutory expiration date of Aug. 31, 2015. The Texas Legislature reinstated the program in 2017. The program has provided over $24 million for the purchase or lease of light-duty alternative fuel and electric-powered vehicles. This includes grants for 9,632 plug-in electric and plug-in hybrid electric vehicles and 278 natural gas vehicles.

Report **Governmental Alternative Fuel Fleet Program**

Since 2021, the Governmental Alternative Fuel Fleet Program has provided over $9 million to governmental entities for the purchase of vehicles and refueling infrastructure.

Texas Hydrogen Infrastructure, Vehicle, and Equipment Grant Program

TCEQ implemented the new Texas Hydrogen Infrastructure, Vehicle, and Equipment Grant Program in Nov. 2023 with a projected $16 million in available funding to encourage the adoption of hydrogen infrastructure, vehicles, and equipment that reduce emissions of NO_x from high-emitting sources in nonattainment areas and affected counties of the state. TCEQ anticipates awarding all available funding under the program.

Regional Air Monitoring Program

Since 2012, the Regional Air Monitoring Program has provided over $29 million to establish and maintain 21 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.

Overview

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

Since NO_x is a primary precursor to the formation of ground-level ozone, 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.

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 Grant (NTIG) Program
- Light-Duty Motor Vehicle Purchase or Lease Incentive Program (LDPLIP)
- Governmental Alternative Fuel Fleet (GAFF) Program
- Texas Hydrogen Infrastructure, Vehicle, and Equipment Grant (THIVE) Program

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 (AQRP)
- Foreign Emissions and Exceptional Events Research

Funding

Texas Emissions Reduction Plan Trust

TERP is funded from revenue deposited to the TERP Trust established under THSC Section 386.250 as an account outside the state treasury. Use of the revenue deposited to the TERP Trust is authorized by the Texas Legislature and is projected to be $518 million in fiscal 2024-2025 biennium. The projected revenue deposits are listed in Appendix 1 of this report. The revenue going to the TERP Trust 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 the sale or lease of on-road diesel vehicles over 14,000 pounds for pre–1997 model years, and a 1% surcharge for those vehicles model year 1997 and newer.
- Texas Transportation Code Section 502.358(a): A 10% surcharge of the total fees due for the registration of truck-tractors and certain commercial motor vehicles.
- Texas Transportation Code Section 501.138(a) and (b): A portion of the vehicle certificate of title fee: $20 of the $33 fee for applicants in the nonattainment areas and affected counties and $15 of the $28 fee for applicants in all other counties.
- Texas Transportation Code Section 548.5055(a): A $10 fee on commercial motor vehicles required to have an annual safety inspection.

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. 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 382.037.

Funds Allocation

TERP allocation amounts listed in Appendix 2 are based upon projected TERP fee revenue. As of Oct. 2023, a projected $336 million will be available for TERP programs and administration in fiscal 2024-2025 biennium.

Beginning Sept. 1, 2021, TCEQ was authorized to utilize the total revenue from the TERP fees remitted to the TERP Trust for TERP programs, without appropriation, provided that no less than 35% of that revenue be transferred to the Texas Highway Fund for TXDOT to implement congestion mitigation projects. For TERP programs with a statutory percentage allocation, the percentage allocation was taken after the deduction of the required 35% transfer to the state highway fund as revenue was received each month.

THSC Section 386.252, provides for TERP funds to be used for other programs under the plan as determined by the commission, based on demand for grants for eligible projects under programs after the commission solicits projects to award grants according to the initial allocation of each program. Therefore, the initial allocations listed in Appendix 2 may change based upon the demand for each grant program in the fiscal 2024-2025 biennium.

Program Accomplishments

The sections that follow include the accomplishments of TERP grant programs from implementation through Aug. 2024. 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 Program

The DERI Program, established under THSC Chapter 386, provides grants for projects that reduce NO_X emissions in the DERI-eligible counties, including counties designated as in nonattainment of the NAAQS and the "Affected Counties" defined under THSC Section 386.001 (see Appendix 3 of this report). The DERI Program includes the Emissions Reduction Incentive Grants Program, the Rebate Grants Program, Small Business Grants, and Third-Party Grants.

Since 2001, the DERI Program has provided $1,374,364,837 for 13,513 projects to replace or upgrade 21,679 vehicles and pieces of equipment. The DERI Program is projected to reduce 191,068 tons of NO_X emissions in the DERI-eligible counties. The DERI Program remains the most cost-effective TERP program, with a historical average cost of $7,193 per ton of NO_X reduced.

A summary of DERI projects awarded is provided by area in Appendix 4 and by emissions source in Appendix 5 of this report. A complete list of DERI Program projects is available at 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.

The status of each DERI program is provided below.

Emissions Reduction Incentive Grants 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 purchase 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 $924,601,610 for 5,592 projects. The ERIG Program is projected to reduce 155,224 tons of NO_X emissions at an average cost of $5,957 per ton.

The latest ERIG Program grant round opened July 25, 2024, with a projected $55 million in available funding. TCEQ received 47 applications for a requested total of $31,621,300. To ensure all available funding is awarded under the ERIG Program, TCEQ plans to open another grant round in Dec. 2024.

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 purchase, replacement, and repower projects.

Since 2006, the Rebate Grants Program has provided $371,814,001 for 4,099 projects. The Rebate Grants Program is projected to reduce 25,824 tons of NO_x emissions at an average cost of $14,398 per ton.

The latest Rebate Grants Program grant round opened May 21, 2024, with a projected $92 million in available funding. TCEQ received 2,462 applications for a requested total of $289,283,055. TCEQ anticipates awarding all available funding under the Rebate Grants Program.

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 no more than 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 entities who meet the statutory definition of a small business under the program.

Since 2006, the Rebate Grants Program has provided $149,961,300 to small businesses for 1,849 projects totaling 11,875 tons of NO_x reductions at an average cost of $12,628 per ton of NO_x reduced.

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, local government projects, and idle reduction projects; 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.

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

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

Texas Clean Fleet Program

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 6 of this report.

Since 2010, TCFP has provided $81,617,123 for 45 projects to replace 797 vehicles with new vehicles powered by natural gas or an alternative fuel. TCFP is projected to reduce 750 tons of NO_x emissions at an average cost of $108,778 per ton. A summary of projects awarded under the TCFP by area and fuel type is provided in Appendix 7 of this report. A complete list of TCFP projects is available on the TERP website at terpgrants.org.

TCEQ plans to open the next TCFP grant round in Jan. 2025, with a projected $17 million in available funding. TCEQ anticipates awarding all available funding under TCFP.

Texas Natural Gas Vehicle Grant Program

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 their annual use in one or more of the counties included in the Clean Transportation Zone. A map of those counties is included in Appendix 6 of this report.

Since 2012, TNGVGP has provided $59,295,085 for 162 projects to replace or repower 1,185 vehicles with newer vehicles or engines powered by natural gas. TNGVGP is projected to reduce 1,718 tons of NO_x emissions at an average cost of $34,515 per ton. A summary of projects awarded under TNGVGP by area and fuel type is provided in Appendix 8 of this report. A complete list of TNGVGP projects is available on the TERP website at terpgrants.org.

The latest TNGVGP grant round opened Sept. 18, 2024, with a projected $25 million in available funding. Eligible projects will be awarded on a first-come, first-served basis through March 4, 2025, or until all available funds are awarded. As of this report, TCEQ has received 14 applications for a requested total of $8,708,485.

Seaport and Rail Yard Areas Emissions Reduction 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 nonattainment.

Grant-funded vehicles and equipment are required to operate at one or more of the eligible seaports, facilities, or rail yards for a minimum of 200 days per year. In addition, grant-funded vehicles are required to operate at least 50% of their annual use in one or more of the DERI-eligible counties (See Appendix 3 of this report).

Since 2015, the SPRY Program has provided $37,554,483 for 241 projects to replace 468 drayage vehicles and pieces of cargo handling equipment operating at seaport and rail yard facilities in nonattainment areas. The SPRY program is projected to reduce 1,633 tons of NO_x emissions in the Texas nonattainment areas and affected counties at an average cost of $23,004 per ton. A summary of projects awarded under the SPRY Program by area is provided in Appendix 9 of this report. A complete list of SPRY Program projects is available on the TERP website at terpgrants.org.

The latest SPRY Program grant round opened April 18, 2024, with a projected $20 million in available funding. Eligible projects will be awarded on a first-come, first-served basis through March 4, 2025, or until all available funds are awarded. As of this report, TCEQ has received 153 applications for a requested total of $27,697,158. TCEQ anticipates awarding all available funding under the SPRY Program.

Texas Hydrogen Infrastructure, Vehicle, and Equipment Grant Program

The THIVE Program, established under THSC Chapter 386, provides grants to encourage the adoption of hydrogen infrastructure, vehicles, and equipment that reduce emissions of NO_X from high-emitting sources in nonattainment areas and affected counties of the state.

Eligible projects include the purchase and installation of hydrogen infrastructure, purchase or lease of new hydrogen-powered heavy-duty vehicles and equipment, replacement of older heavy-duty vehicles and equipment with newer hydrogen-powered models, and the repower or conversion of vehicles and equipment with a powertrain that runs on or is powered by hydrogen.

The first THIVE grant round opened Nov. 29, 2023, with a projected $16 million in available funding. TCEQ received 16 eligible applications for a requested total of $38.5 million. As of this report, THIVE has provided $3,250,000 for one project. TCEQ is in the process of executing contracts for seven additional THIVE projects totaling $12,750,000. A list of projects selected for award is provided in Appendix 16 of this report.

Grants to Provide Alternative Fuels for Transportation

Alternative Fueling Facilities Program

AFFP, established under THSC Chapter 393, provides grants for the construction or reconstruction 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 6 of this report).

Since 2012, AFFP has provided $31,729,162 for the construction or reconstruction of 318 facilities to store, compress, or dispense alternative fuels in the Clean Transportation Zone. A summary of projects awarded under AFFP by area and by fuel type is provided in Appendix 10 of this report. A complete list of AFFP projects is available on the TERP website at terpgrants.org.

The latest AFFP grant round opened Jan. 23, 2024, with $12 million in available funding. TCEQ received 140 applications requesting a total of $29,701,039. TCEQ anticipates awarding all available funding under AFFP.

Other Grants to Reduce Vehicle Emissions

Texas Clean School Bus 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 purchase and installation of emissions-reducing add-on equipment such as closed-crankcase filtration systems and diesel particulate filters or diesel oxidation catalysts on engines of model year 1998 and older.

Since 2018, the TCSB Program has provided $52,373,505 for 244 projects to replace 711 school buses totaling 360 tons of projected NO_X reductions at an average cost of $145,491 per ton of NO_X reduced. A list of TCSB Program replacement projects, by area and by fuel type, is provided in Appendix 12 of this report.

The latest TCSB Program grant round opened Feb. 14, 2024, with a projected $13.5 million in available funding. TCEQ received 105 applications for a requested total of $27,930,578. TCEQ anticipates awarding all available funding under the TCSB Program.

Light-Duty Motor Vehicle Purchase or Lease Incentive Program

LDPLIP, established under THSC Chapter 386, provides 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 electric 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, LDPLIP has provided $24,307,598 for the purchase or lease of 9,929 vehicles, including $23,326,348 for 9,632 electric and plug-in electric hybrid vehicles and $893,750 for 278 natural gas vehicles. A summary of LDPLIP grants awarded by fuel type is provided in Appendix 11 of this report.

TCEQ is statutorily limited to awarding no more than 1,000 grants for qualifying natural gas vehicles and no more than 2,000 grants for qualifying hydrogen fuel cell or other electric drive vehicles.

The latest LDPLIP grant round opened Oct. 23, 2023, with a projected $8 million in available funding. TCEQ received 3,157 grant applications for electric drive vehicles for a requested total of $7,859,890 and one grant application for a natural gas vehicle for a requested total of $5,000. TCEQ anticipates awarding all available grants for electric drive vehicles.

Governmental Alternative Fuel Fleet 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 vehicle versus a traditional vehicle powered by diesel or gasoline. Eligible alternative fuels include CNG, LNG, LPG, hydrogen, and electricity.

Since 2021, the GAFF Program has provided $9,976,943 for 19 projects including 216 activities for the purchase or replacement of alternative fuel or hybrid vehicles and purchase and installation of refueling or charging infrastructure. A complete list of projects awarded under the GAFF Program is provided in Appendix 13 of this report.

TCEQ plans to open the next GAFF Program grant round in Dec. 2024, with a projected $4.3 million in available funding. TCEQ anticipates awarding all available funds under the GAFF Program.

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 of Texas (PUC), electric utilities are required to acquire energy efficiency savings through the administration of standard offer programs, market transformation programs, pilot programs, and self-directed programs.

As 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 Energy Systems Laboratory (ESL), at 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 electric consumption by at least 5% each state fiscal year for seven years, beginning Sept. 1, 2019.

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).

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 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. ESL is responsible for determining the energy savings from energy code adoption and, when applicable, form more stringent or above-code performance ratings.

Effectiveness of Energy-Efficiency and Renewable Energy Programs

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 ESL for an annual computation of statewide emissions reductions obtained through wind and renewable energy resources. ESL has also assessed the electricity savings from residential air conditioner replacements.

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)*. ESL reports are available from the ESL website. A link to the reports is also provided on the TERP website at terpgrants.org.

The latest ESL report (ESL-TR-23-09-03) was published in Oct. 2023 for the (Calendar Year (CY)) Jan. 2022 through Dec. 2022 (CY 2022 Report). The CY 2023 report is anticipated to be published by the end of 2024 and will be available on the ESL website.

The tables below provide information from the CY 2022 report on total annual electricity savings in megawatt hours per year (MWh/year) and ESL's calculated annual NO_x emissions reductions from these programs in 2022. The savings and emissions reductions for 2023 are based on ESL's preliminary projections included in the CY 2022 report. Updated estimates for 2023 will be available in the CY 2023 report.

Annual Electricity Savings and Wind Generation (CY 2022 and 2023)

Program	2022 (MWh/year)	2023* (MWh/year)
Texas Building Energy Performance Standards	857,526	1,188,979
Goal for Energy Efficiency	510,991	638,321
Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities	1,140,211	1,436,440
Renewable Generation - Wind (ERCOT)	56,941,742	74,737,111
Residential Air Conditioner Retrofits	725,539	980,531
Total Integrated Annual Savings	**60,176,008**	**78,981,382**

*2023 figures are ESL's projections through the end of 2023 included in the CY 2022 final report.

Annual NO_x Emissions Reductions (CY 2022 and 2023)

Program	2022 Tons of NO_x	2023* Tons of NO_x
Texas Building Energy Performance Standards	355	490
Goal for Energy Efficiency	188	233
Energy Efficiency Programs in Institutions of Higher Education and Certain Government Entities	493	637
Renewable Generation - Wind (ERCOT)	32,816	49,929
Residential Air Conditioner Retrofits	290	391
Total Integrated Annual NO_x Emissions	**34,142**	**44,680**

*2023 figures are ESL's projections through the end of 2023 included in the CY 2022 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. To factor in the degree of complexity 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 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, 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 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.

Program for Emissions Reductions From Facilities

New Technology Implementation Grant 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 stationary sources.
- New technology projects that reduce emissions from upstream, midstream and downstream oil and gas production, completions, gathering, storage, processing, transmission, and refining activities.
- Electricity storage projects related to renewable energy.

Since 2010, the NTIG Program has provided $22,248,600 for 17 projects including eight electricity storage projects related to renewable energy; two new technology projects to reduce emissions from stationary sources; and seven new technology projects to reduce emissions from oil and gas activities. A complete list of NTIG projects is provided in Appendix 14 of this report.

The latest NTIG grant round opened Oct. 31, 2024, with a projected $11 million in available funding. TCEQ anticipates awarding all available funds under the NTIG Program.

Other Programs Included Under TERP

Port Authority Studies and Pilot Projects Program

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).

Since 2018, the PASPP Program has provided $2,841,597 for three projects including a Port of Houston Authority study of incentives to encourage cargo movement that reduces emissions of NO_x and PM at the port and pilot of a electric terminal tractor at a container terminal; a Port of Corpus Christi Authority study to analyze and implement technology to capture exhaust emissions from marine vessels that operate using ship power while at berth; and a Galveston Wharves Board of Trustees pilot of a microgrid demonstration, pairing grant-funded microgrid technology with existing shore infrastructure and one or more large, ocean-going cargo vessels. A complete list of PASPP projects is provided in Appendix 15 of this report.

TCEQ sent letters requesting interest in the PASPP program to 11 port authorities located within DERI-eligible counties on Sept. 25, 2024. As of this report, no letters of interest have been received by TCEQ.

Regional Air Monitoring Program

The 82nd Texas Legislature, Regular Session, 2011, amended THSC Chapter 386 to establish a regional air monitoring program in TCEQ's Regions 3 (Abilene Region) and 4 (Dallas/Fort Worth Region), 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, 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 Oct. 21, 2011.

The program was allocated up to $7 million per fiscal year over the fiscal 2012-2013 biennium to establish monitoring sites and begin monitoring activities. The program was allocated up to $3 million in 2014 and subsequent years to continue monitoring activities. The cumulative TERP expenditures for the program through Aug. 2023 were $29,800,447.

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.

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.

The Air Quality Research Support Program (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, 2011, 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.

TERP allocations to this program are determined each fiscal biennium. The allocation for the fiscal 2024-2025 biennium is $750,000 per fiscal year. AQRP has funded over 80 projects lead by 25 entities and numerous collaborating entities, including five projects for the fiscal 2024-2025 biennium.

Some of the major projects that have been sponsored through this program from fiscal 2010 through fiscal 2023 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 from Texas air quality field studies.
- Development of new tools to use satellite observations to characterize pollutants in Texas cities.

Foreign Emissions and Exceptional Events Research

The 85th Texas Legislature amended THSC Chapter 386 to allow grants for research on the impact of foreign emissions and exceptional air quality events if money was appropriated from the TERP Fund for that purpose. HB 3745, 86th Texas Legislature, Regular Session, 2019, amended THSC Section 386.252(f), authorizing the agency to use no more than $2.5 million per year to fund the research and other activities associated with making demonstrations to EPA, beginning fiscal 2022.

Since 2021, over 30 projects have been funded. Nine research projects, totaling $863,000, are planned in fiscal 2025 to improve dust, fire, agricultural, and shipping emissions as well as refine modeling processes to better represent the effects of foreign emissions and exceptional events. Funding in fiscal 2024 and 2025 was also used to develop the necessary technical tools and data needed for the implementation of HB 4932, 88th Texas Legislature, Regular Session, 2023, to estimate the contribution of foreign emissions at Texas regulatory monitors in ozone and particulate matter nonattainment areas as of Sept. 1, 2026. In addition, fiscal 2024 funds were also used to hire a full-time employee (FTE) to support implementation of HB 4932. Funding in fiscal 2026 is expected to continue to fund the FTE as well the research grants to support implementation of HB 4392.

Health Effects Studies

The Health Effect Studies implements THSC Section 386.252(a)(8). Each fiscal year until fiscal 2024, $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 same allocation from the TERP Trust, as well as through other non-TERP funding sources. Recent studies and activities conducted in fiscal 2023 and 2024 are outlined below.

- An analysis was conducted of the risk assessment modeling done by EPA for determining the effects of ozone concentrations on lung function. Learning more about how modeled risks from ozone compare to measured risks found in scientific studies is important for understanding how decreases in ambient ozone concentrations will lead to benefits for people with respiratory disease.
- Studies began in fiscal 2021 to evaluate health risk factors and disease incidence in fence line communities, particularly those downwind of refineries (e.g., around the Houston Ship Channel). Such research will help the agency understand the health impacts of these communities, which will improve our understanding of effects attributable to airborne chemicals from industrial facilities. This work is ongoing and will continue into fiscal 2025.
- TCEQ toxicologists use state-of-the-science methods for evaluating health effects studies as part of the process of setting safe levels of chemicals in air. During fiscal 2024, an update to one part of these methods, called systematic review, was undertaken to ensure that the agency is using the best processes in our assessment of chemical

toxicity. Part of this update included an evaluation of the data for inhalation toxicity of the heavy metal vanadium.

TCEQ Monitoring of TERP Grants

To minimize the risk of fraud, TCEQ continues to implement a three-tiered Quality Assurance and Fraud Prevention and Detection Program for TERP 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 templates and obtain approval from TCEQ legal and central contracting offices for each contract, follow written grant management procedures, review reimbursement requests completed by financial reimbursement and program staff prior to program management, and maintain an electronic database for contract and financial 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, TERP staff works with TCEQ legal and investigative staff to follow-up on noncompliance issues or issues of potential fraud or abuse.

Future Considerations for 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

The 88th Texas Legislature passed HB 4885, effective Sept. 1, 2023, that:

- Established the THIVE Program to reduce NO_x in nonattainment areas and affected counties by promoting hydrogen as an alternative fuel.
- Adjusted funding allocations for certain TERP programs.
- Expanded eligible projects under the NTIG Program to include downstream oil and gas activities, including refining.
- Increased the amount that TCEQ may contract with ESL at the Texas A&M Engineering Experiment Station and expanded the types of projects that may be included in that contract.

Cost-Effectiveness

The DERI Program remains the most cost-effective TERP program, with a historical average cost of $7,193 per ton of NO_x reduced as of Aug. 2024. In the most recent biennium, fiscal 2022-2023 biennium, the average cost per ton of NO_x reduced under the DERI Program was $44,172.54.

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 TERP programs increasingly include the upgrade or replacement of newer vehicles and equipment with engines that already meet more stringent NO_x emissions standards than past projects, requiring TCEQ to fund more projects to achieve the same or more emissions reductions as in previous biennia. Additionally, inflation and supply chain issues are increasing the costs of new and used vehicles, engines, and other equipment. As a result, TCEQ must offer more grant funds 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. TCEQ is authorized to set limits as needed to address program goals and objectives. In the most recent biennium, fiscal 2022-2023 biennium, TCEQ set DERI Program cost per ton limits at $20,000 per ton of NO_x reduced for marine and locomotive projects, and $35,000 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.

Role of TERP Going Forward

TCEQ estimates mobile sources to be responsible for more than half of NO_x emissions in certain nonattainment 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. TERP, however, can 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 nonattainment areas and other affected counties.

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, supplement model results, and support the adequacy of proposed control strategies.

TERP programs also continue to provide significant incentives encouraging the build-out of alternative fueling facilities in Texas, as electric and other alternative technologies expand in the state’s private and commercial transportation sectors.

Finally, TERP funding for electricity storage, oil and gas emissions reductions, and other stationary source emissions reduction continues to encourage innovation that can enhance the state’s electric and energy markets.

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

Appendix 1. TERP Trust FY 2023–2025

		FY 2023[1]	FY 2024[2]	Est. FY 2025[3]
	Beginning Balance	$132,458,081.83	$0.00	$136,095,800.67
REVENUE				
3851 TERP Interest		8,031,911.82	15,525,815.33	
3012 Motor Vehicle Certificate of Title		123,849,214.99	123,943,060.57	
3102 Diesel Equipment Surcharge		94,549,748.87	105,159,160.63	
3014 Motor Vehicle Registration		14,814,060.59	14,811,516.49	
3020 Motor Vehicle Inspection		6,789,720.00	6,881,056.00	
3004 Motor Vehicle Sales & Use		24,864,213.71	26,336,228.32	
3016 Motor Vehicle Sale & Seller Finance		20,162.46	31,032.12	
3847 Invoiced Due to Non-Compliance (YTRP)			842,754.95	
	Subtotal	$272,919,032.44	$293,530,624.41	$312,675,134.00
TOTAL		$405,377,114.27	$293,530,624.41	$448,770,934.67
EXPENDITURES/ENCUMBRANCES				
Transfer to TxDOT - 35% of Revenue Received		95,521,661.33	102,440,754.32	109,436,297.00
Transfer to Fund 151 -HB 37, 79th Session		500,000.00	500,000.00	500,000.00
Expenditures		37,721,113.91	25,479,259.40	338,834,637.67
Accrual for Salaries		75,308.84		
Accrual - Retention Bonuses		36,000.00		
Pending Expenditure Transfer Vouchers (ETV)		238,097.91		
Open Encumbrances		271,216,884.11	19,549,418.69	
Final Remaining Balance Transfer to TxDOT		68,048.17	n/a	
Pending Liquidations		0.00		
TOTAL		$405,377,114.27	$147,969,432.41	$448,770,934.67
REMAINING BALANCE		$0.00	$145,561,192.00	$0.00

[1]Amounts listed for FY 2023 are as of Sept. 30, 2023.
[2]Amounts listed for FY 2024 Expenditures and Encumbrances are sourced from CAPPS Financials.
[3]Amounts listed for FY 2025 are estimated.

Appendix 2. Projected TERP Funding Allocation (FY 2024–2025)

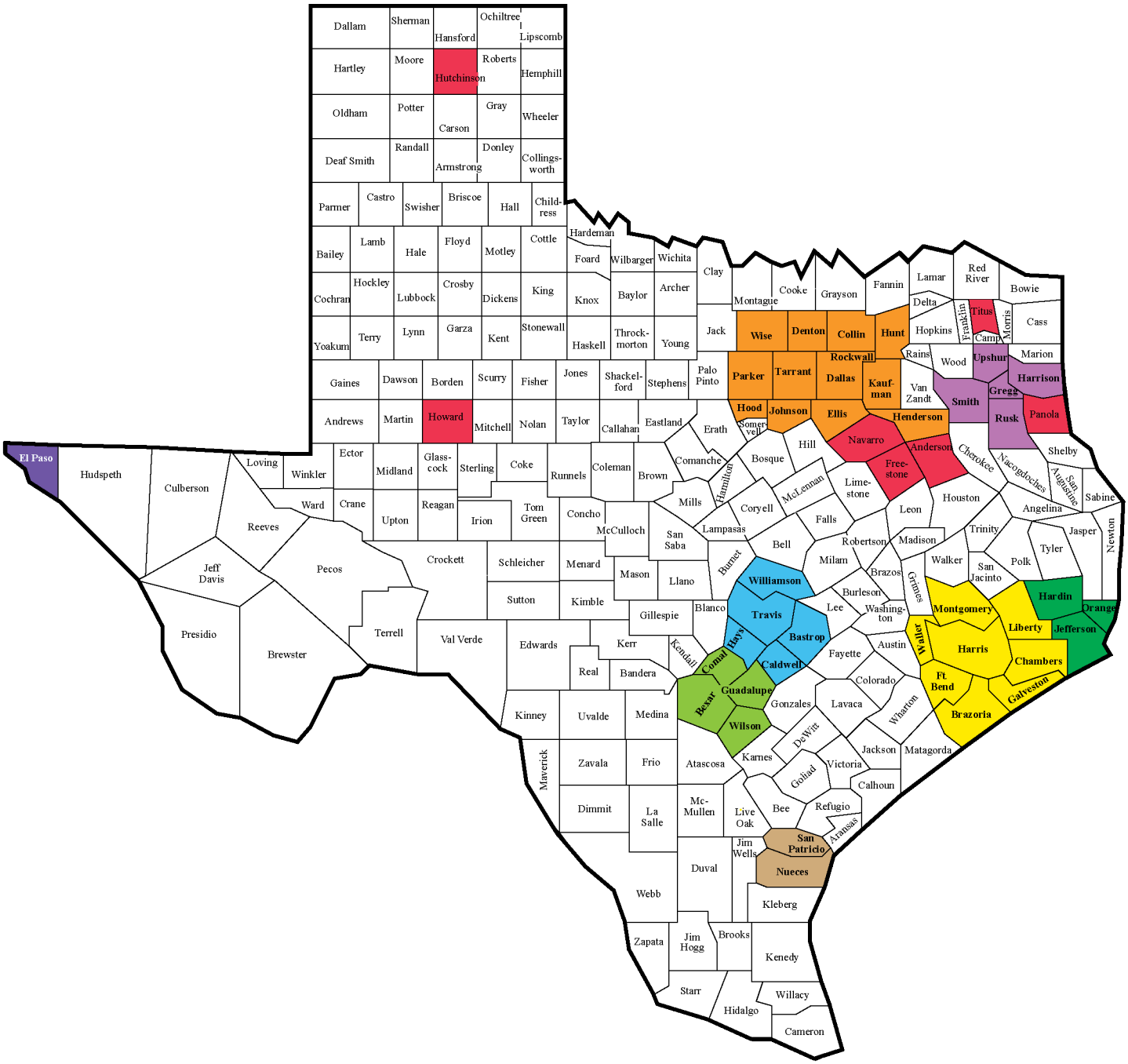
Program	Projected Allocation[1,2]	Statutory Allocation Percentage (%)
TCEQ Administration	$25,259,764/FY	At least $6,000,000 but not more than 15%
TXDOT Congestion Mitigation Projects	$90,676,075/FY	TCEQ shall deposit no less than 35% of the fund to the credit of the state highway fund
Texas Clean School Bus Program	$6,735,937/FY	4%
New Technology Implementation Grant Program	$5,471,874/FY	8% with THIVE; with at least $1 million for battery storage
Texas Hydrogen Infrastructure, Vehicle, and Equipment Grant Program	$8,000,000/FY	8% with NTIG but not more than $8,000,000/FY
Texas Clean Fleet Program	$8,419,922/FY	5%
Regional Air Monitoring Program	$3,000,000/FY	not more than $3,000,000/FY
Texas Natural Gas Vehicle Grant Program	$12,629,882/FY	7.5%
Alternative Fueling Facilities Program	$6,000,000/FY	not more than $6,000,000/FY
Research	$750,000/FY	not more than $750,000/FY
Health Effects Study	$200,000/FY	not more than $200,000/FY
Seaport and Rail Yards Emissions Reduction Program	$10,103,906/FY	6%
Light-Duty Motor Vehicle Purchase or Lease Incentive Program	$4,209,961/FY	2.5%
Energy Systems Laboratory Contract	$500,000/FY	not more than $500,000/FY
Foreign Emissions and Exceptional Events Research	$2,500,000/FY	not more than $2.5 million to conduct research and other activities to account for the impact of foreign emissions or an exceptional event
Air Quality Planning (Fund 151)	$500,000/FY	$500,000/FY
Port Authorities Studies & Pilot Projects	$500,000/FY	not more than $500,000/FY
Governmental Alternative Fuel Fleet Program	$4,372,634/FY2025	not more than 3% of the balance at the start of each FY
Diesel Emissions Reduction Incentive Program	$71,430,864/FY	balance of the fund
Total Allocation	**$259,074,502/FY**	

[1]Allocation amounts are projected and subject to change as revenue from the TERP fees is deposited to the credit of the TERP Trust monthly.
[2]Projected TERP percentage allocation amounts are based on fee revenue remaining after transferring 35% to the state highway fund.

Appendix 3. DERI Program Eligible Counties

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

Note: eligible counties may vary with each grant cycle.



Appendix 4. DERI Program Projects by Area

Texas Emissions Reduction Plan
Diesel Emissions Reduction Incentive Program

Projects by Area
FY 2002 through FY 2024

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			
						FY 2024	FY 2025	FY 2026	FY 2027
Austin	1,421	2,117	$128,466,894	12,049	$10,662	1.95	1.52	1.24	1.07
Beaumont/Port Arthur	311	592	$54,174,423	9,508	$5,698	0.88	0.79	0.62	0.49
Corpus Christi	131	347	$26,934,784	3,346	$8,050	0.45	0.42	0.56	0.53
Dallas/Fort Worth	4,997	8,059	$438,400,253	85,080	$5,153	4.90	4.01	2.97	2.32
El Paso	150	210	$4,575,298	854	$5,360	0.08	0.08	0.08	0.08
Houston/Galveston/Brazoria	4,783	7,861	$537,268,966	63,138	$8,509	6.21	4.90	4.36	3.53
Other[4]	38	58	$6,154,991	85	$72,469	0.07	0.07	0.09	0.09
San Antonio	1,364	1,990	$137,235,406	12,321	$11,138	1.77	1.57	1.51	1.33
Tyler/Longview	225	341	$35,626,968	4,130	$8,627	0.17	0.17	0.16	0.16
Victoria	93	104	$5,526,853	558	$9,913	0.21	0.14	0.06	0.04
Grand Total	**13,513**	**21,679**	**$1,374,364,837**	**191,068**	**$7,193**	**16.69**	**13.67**	**11.65**	**9.63**

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.
[4]Includes the following counties with a nonattainment area for Sulfur Dioxide: Anderson, Freestone, Howard, Hutchinson, Navarro, Panola and Titus.

Appendix 5. DERI Program Projects by Emission Source

Texas Emissions Reduction Plan
Diesel Emissions Reduction Incentive Program

Projects by Emissions Source
FY 2002 through FY 2024

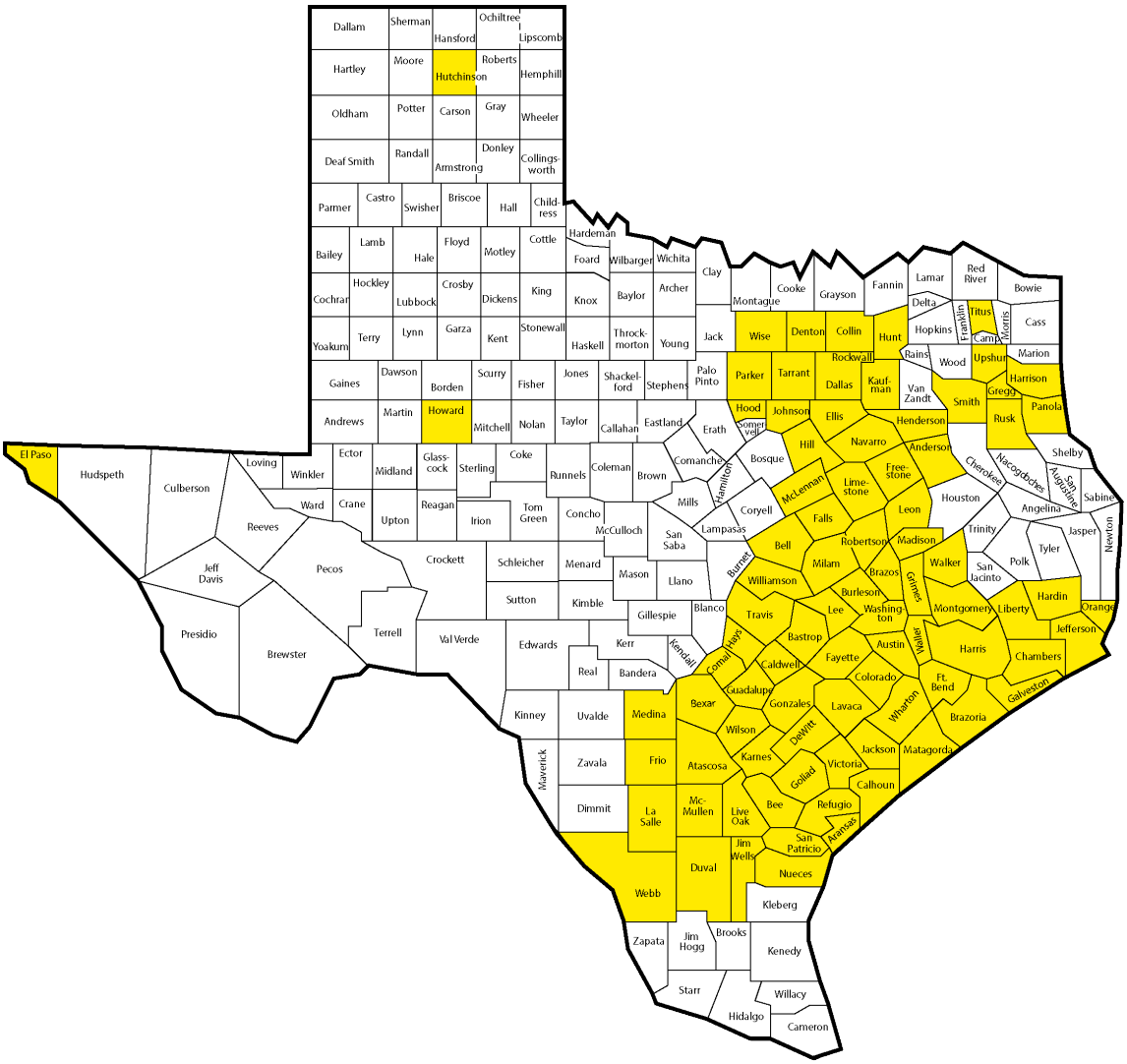
Emission Source	Total Number of Projects	Total Number of Activities	Total Grant Amount[1,2]	Total NO_X Reduced (Tons)[2]	Average Cost Per Ton of NO_X Reduced[3]	Total Tons Per Day of NO_X Reduced			
						FY 2024	FY 2025	FY 2026	FY 2027
Non-Road	7,772	10,741	$541,332,776	53,822	$10,058	6.79	5.38	4.53	3.66
On-Road	5,494	9,882	$516,429,955	63,953	$8,075	5.63	4.55	3.30	2.43
Marine	109	596	$64,714,169	16,722	$3,870	1.77	1.26	1.40	1.13
Stationary	83	143	$18,046,159	4,745	$3,803	0.28	0.27	0.26	0.25
Locomotive	55	317	$233,841,777	51,825	$4,512	2.22	2.22	2.17	2.17
Grand Total	**13,513**	**21,679**	**$1,374,364,837**	**191,068**	**$7,193**	**16.69**	**13.67**	**11.65**	**9.63**

[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. Clean Transportation Zone Counties

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

Note: The Clean Transportation Zone includes the counties eligible under the Alternative Fueling Facilities Program, the Texas Clean Fleet Program, and the Texas Natural Gas Vehicle Grant Program. Eligible counties may vary with each grant cycle.



Appendix 7. TCFP Projects by Area and Fuel Type

Texas Emissions Reduction Plan
Texas Clean Fleet Program

Projects by Area and Fuel Type
FY 2011 through FY 2024

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			
						FY 2024	FY 2025	FY 2026	FY 2027
Austin	10	198	$17,909,184	165	$108,533	0.02	0.02	0.02	0.01
Beaumont/Port Arthur	1	17	$952,541	9	$110,665	<0.01	<0.01	<0.01	<0.01
Corpus Christi	0	0	$5,648	<1	$112,679	<0.01	<0.01	<0.01	<0.01
Dallas/Fort Worth	13	223	$23,353,114	277	$84,163	0.03	0.01	0.02	0.01
Houston/Galveston/Brazoria	13	270	$24,328,637	202	$120,311	0.05	0.01	0.02	0.01
San Antonio	7	80	$13,902,497	92	$150,753	0.06	0.02	0.03	0.02
Tyler/Longview	0	0	$3,039	<1	$121,230	<0.01	<0.01	<0.01	<0.01
Clean Transportation Zone	1	9	$1,162,463	5	$247,185	<0.01	<0.01	<0.01	<0.01
Grand Total	**45**	**797**	**$81,617,123**	**750**	**$108,778**	**0.16**	**0.06**	**0.10**	**0.06**

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			
						FY 2024	FY 2025	FY 2026	FY 2027
CNG	18	325	$47,995,017	482	$99,563	0.13	0.03	0.05	0.03
Diesel Hybrid	1	55	$3,181,967	40	$80,506	<0.01	<0.01	<0.01	<0.01
Electricity	6	52	$8,093,082	35	$233,127	0.01	0.01	0.03	0.02
LPG	20	365	$22,347,056	194	$115,186	0.02	0.02	0.02	0.01
Grand Total	**45**	**797**	**$81,617,123**	**750**	**$108,778**	**0.16**	**0.06**	**0.10**	**0.06**

[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 8. TNGVGP Projects by Area and Fuel Type

Texas Emissions Reduction Plan
Texas Natural Gas Vehicle Grant Program

Projects by Area and Fuel Type
FY 2012 through FY 2024

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			
						FY 2024	FY 2025	FY 2026	FY 2027
Austin	10	113	$4,359,477	102	$42,631	0.01	0.01	<0.01	<0.01
Beaumont/Port Arthur	0	0	$148,528	6	$25,288	<0.01	<0.01	<0.01	<0.01
Clean Transportation Zone	30	142	$13,345,359	426	$31,348	0.02	0.01	0.01	<0.01
Corpus Christi	0	0	$253,969	9	$27,862	<0.01	<0.01	<0.01	<0.01
Dallas/Fort Worth	76	556	$20,860,150	602	$34,649	0.06	0.04	0.05	0.05
El Paso	3	12	$886,228	42	$21,023	<0.01	<0.01	<0.01	<0.01
Houston/Galveston/Brazoria	35	287	$14,656,521	363	$40,363	0.06	0.05	0.05	0.04
San Antonio	6	63	$3,900,080	131	$29,759	0.03	<0.01	<0.01	<0.01
Tyler/Longview	2	12	$829,431	33	$24,863	<0.01	<0.01	<0.01	<0.01
Victoria	0	0	$55,341	3	$16,869	<0.01	<0.01	<0.01	<0.01
Grand Total	**162**	**1,185**	**$59,295,085**	**1,718**	**$34,515**	**0.17**	**0.11**	**0.11**	**0.10**

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			
						FY 2024	FY 2025	FY 2026	FY 2027
CNG	111	862	$41,743,716	1,235	$33,788	0.15	0.09	0.09	0.08
CNG/Diesel	6	6	$879,519	8	$106,421	<0.01	<0.01	0.01	0.01
LNG	5	84	$4,284,000	148	$28,959	<0.01	<0.01	<0.01	<0.01
LNG/Diesel	11	99	$7,620,600	263	$28,999	<0.01	<0.01	<0.01	<0.01
LPG	29	134	$4,767,250	64	$75,048	0.02	0.02	0.01	0.01
Grand Total	**162**	**1,185**	**$59,295,085**	**1,718**	**$34,515**	**0.17**	**0.11**	**0.11**	**0.10**

[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 9. SPRY Projects by Area

Texas Emissions Reduction Plan
Seaport and Rail Yard Areas Emissions Reduction Program

Projects by Area
FY 2015 through FY 2024

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			
						FY 2024	FY 2025	FY 2026	FY 2027
Austin	0	0	$33,000	1	$61,273	<0.01	<0.01	<0.01	<0.01
Beaumont/Port Arthur	0	0	$65,311	1	$63,559	<0.01	<0.01	<0.01	<0.01
Dallas/Fort Worth	10	34	$1,673,679	73	$22,947	0.03	0.03	0.04	0.02
El Paso	1	2	$109,745	5	$20,000	<0.01	<0.01	<0.01	<0.01
Houston/Galveston/Brazoria	214	416	$34,895,976	1,521	$22,949	0.80	0.79	0.88	0.73
San Antonio	16	16	$776,771	32	$24,311	0.02	0.02	0.02	0.02
Grand Total	**241**	**468**	**$37,554,483**	**1,633**	**$23,004**	**0.85**	**0.85**	**0.94**	**0.77**

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 10. AFFP Projects by Area and Fuel Type

Texas Emissions Reduction Plan
Alternative Fueling Facilities Program

Projects by Area and Fuel Type
FY 2013 through FY 2024

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

Fuel Type[1]	Number of Projects	Total Grant Amount
CNG	40	$15,046,351
Electricity	220	$9,303,943
Biodiesel	21	$4,448,177
CNG/LNG	4	$1,700,000
LPG	29	$376,326
Biodiesel/Electricity	3	$284,359
CNG/Electricity	1	$570,005
Grand Total	**318**	**$31,729,162**

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

Area	Number of Projects	Total Grant Amount
Beaumont-Port Arthur	1	$268,123
Corpus Christi	3	$50,915
Dallas/Fort Worth	115	$8,161,480
Houston/Galveston/Brazoria	93	$9,082,138
Austin	34	$4,012,282
Clean Transportation Zone	31	$4,777,818
San Antonio	26	$3,960,902
Tyler/Longview	13	$1,367,006
Victoria	2	$48,497
Grand Total	**318**	**$31,729,162**

Appendix 11. LDPLIP Projects by Fuel Type

Texas Emissions Reduction Plan
Light Duty Purchase or Lease Incentive Program

Projects by Fuel Type
FY 2014 through FY 2024

Fuel Type[1]	Number of Projects	Total Grant Amount
Electricity	9,632	$23,326,348
CNG	235	$678,750
CNG/Gasoline	43	$215,000
Hydrogen	3	$7,500
LPG	10	$50,000
CNG/Diesel	6	$30,000
Grand Total	**9,929**	**$24,307,598**

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

Appendix 12. TCSB Program Projects by Area and Fuel Type

Texas Emissions Reduction Plan
Texas Clean School Bus Program

Projects by Area and Fuel Type
FY 2018 through FY 2024

Primary Area	Number of Projects	Number of Activities	Total Grant Amount[1]	Total NO_x Reduced (Tons)[1]	Average Cost Per Ton of NO_x Reduced[2]	Tons Per Day of NO_x Reduced					
						FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Austin	12	51	$3,513,341	23	$152,566	0.02	0.01	0.01	0.01	0.01	0.01
Beaumont/Port Arthur	8	18	$1,318,668	11	$124,810	0.01	0.01	0.01	<0.01	<0.01	<0.01
Corpus Christi	3	9	$938,180	5	$173,949	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dallas/Fort Worth	30	99	$7,122,461	54	$131,079	0.03	0.03	0.04	0.03	0.03	0.02
Houston/Galveston/Brazoria	16	54	$3,624,872	24	$153,473	0.01	0.01	0.02	0.02	0.02	0.01
San Antonio	9	34	$2,316,970	17	$134,812	0.01	0.01	0.01	0.01	0.01	<0.01
Tyler	8	24	$1,826,900	12	$147,046	0.01	0.01	0.01	0.01	0.01	0.01
Victoria	0	0	$1,980	0	$111,959	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Other	158	422	$31,710,133	213	$148,590	0.11	0.09	0.14	0.13	0.12	0.11
Grand Total	**244**	**711**	**$52,373,505**	**360**	**$145,491**	**0.20**	**0.16**	**0.25**	**0.22**	**0.20**	**0.18**

Fuel Type[3]	Number of Activities	Total Grant Amount[1]	Total NO_x Reduced (Tons)[1]	Average Cost Per Ton of NO_x Reduced[2]	Tons Per Day of NO_x Reduced			
					FY 2024	FY 2025	FY 2026	FY 2027
CNG	3	$198,000	2	$111,959	<0.01	<0.01	<0.01	<0.01
Diesel	508	$33,942,095	259	$130,987	0.15	0.12	0.18	0.15
Electricity	11	$2,644,600	6	$439,806	<0.01	<0.01	<0.01	<0.01
Gasoline	151	$12,890,838	78	$165,272	0.04	0.04	0.06	0.05
LPG	38	$2,697,972	15	$178,998	0.01	0.01	0.01	0.01
Grand Total	**711**	**$52,373,505**	**360**	**$145,491**	**0.20**	**0.16**	**0.25**	**0.22**

[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 13. GAFF Project Description

Texas Emissions Reduction Plan
Governmental Alternative Fuel Fleet Program

Project Description
FY 2021 through FY 2024

Applicant	Primary Area	Project Description	Primary Fuel Type[1]	Total Grant Amount
Cypress-Fairbanks Independent School District	Houston/Galveston/Brazoria	Replace 80 on-road school buses, and purchase and install refueling infrastructure	LPG	$6,000,000
City of Lake Jackson	Houston/Galveston/Brazoria	Replace 4 on-road Class 8 vehicles	CNG	$320,000
City of Houston	Houston/Galveston/Brazoria	Purchase 6 on-road Class 1 vehicles, and purchase and install refueling infrastructure	Electricity	$112,200
Parker County	Dallas/Fort Worth	Replace 6 on-road Class 2 vehicles	CNG	$138,000
Austin ISD	Austin	Purchase 3 on-road school buses, and purchase and install refueling infrastructure	Electricity	$264,000
University of Texas Southwestern Medical Center	Dallas/Fort Worth	Replace 4 on-road Class 4 vehicles	CNG	$160,000
City of Dallas	Dallas/Fort Worth	Replace 7 on-road Class 2 vehicles, purchase 1 on-road Class 1 vehicle, purchase 1 on-road Class 2 vehicle, and replace 1 on-road Class 1 vehicle	Electricity	$218,000
City of Dallas	Dallas/Fort Worth	Replace 10 on-road Class 2 vehicles	Electricity	$230,000
City of Dallas	Dallas/Fort Worth	Replace 10 on-road Class 2 vehicles	Electricity	$230,000
City of Austin	Austin	Purchase 8 on-road Class 2 vehicles and replace 2 on-road Class 2 vehicles	Electricity	$78,143
TXDOT	Dallas/Fort Worth	Purchase 3 on-road Class 2 vehicles	LPG	$69,000
TXDOT	Dallas/Fort Worth	Purchase 10 on-road Class 2 vehicles	LPG	$230,000
TXDOT	San Antonio (Bexar County)	Purchase 2 on-road Class 2 vehicles	LPG	$46,000
TXDOT	Houston/Galveston/Brazoria	Purchase 4 on-road Class 2 vehicles	CNG	$92,000
City of Austin	Austin	Replace 10 on-road Class 4 vehicles	CNG	$400,000
City of Grand Prairie	Dallas/Fort Worth	Purchase 10 on-road Class 3 vehicles, and purchase and install refueling infrastructure	Electricity	$253,000
City of San Antonio	San Antonio (Bexar County)	Replace 9 on-road Class 1 vehicle, and purchase and install refueling infrastructure	Electricity	$168,300
City of San Antonio	San Antonio (Bexar County)	Replace 9 on-road Class 1 vehicles, and purchase and install refueling infrastructure	Electricity	$168,300
El Paso ISD	El Paso	Replace 10 on-road Class 7 vehicles	LPG	$800,000
Grand Total				**$9,976,943**

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

Appendix 14. NTIG Projects

Texas Emissions Reduction Plan
New Technology Implementation Grant Program

Project Descriptions
FY 2015 through FY 2024

Grantee	Project Category	Project Description	Location	Total Grant Amount
Southwest Research Institute	New Technology	This project includes the installation of a stainless-steel baghouse equipped with a combined Activated Carbon Injection (ACI) and Dry Sorbent Injection (DSI) system, providing service to three contiguous buildings. The goal of the emission reduction project is to capture and control emissions of particulate matter, as well as hazardous and toxic air pollutants. Emissions are trapped in a common centralized Pollution Abatement System and treated.	San Antonio, TX	$500,000
NRG Texas Power, LLC	Electricity Storage	This project has an integrated Lithium-ion (li-ion) battery system providing two megawatts (MW) of electric output of energy from wind and other renewable power. Wind energy captured by the Elbow Creek wind farm and other renewable resources are stored and delivered via the ERCOT system to the Energy Storage System and then in turn delivered back to the electric grid.	Big Spring, TX	$924,078
Austin Energy	Electricity Storage	This project includes a 2.6 MW solar PV facility adjacent to their established utility-scale Energy Storage System (ESS) that has an integrated lithium-ion (li-ion) battery system, providing 1.5 megawatts (MW) of electric output and storing up to 3.0 megawatt-hours (MWh) of energy. Both facilities will reduce demand during periods of peak energy use.	Austin, TX	$1,000,000
CPS Energy	Electricity Storage	This project has a 10-megawatt (MW) / 10-megawatt hour (MWh) lithium-ion battery energy storage system (BESS). The BESS is collocated with a 5 MW utility-scale solar photovoltaic (PV) facility located in San Antonio. Solar energy that is captured by the PV facility is stored by the BESS and delivered back to the electric grid. The project reduces emissions by using renewable energy during energy use. The project also reduces emissions by regulating energy frequency going to the Electric Reliability Council of Texas (ERCOT) grid.	San Antonio, TX	$3,000,000

Grantee	Project Category	Project Description	Location	Total Grant Amount
Pedernales Electric Cooperative, Inc.	Electricity Storage	This project integrated a 2 MW / 4 MWh lithium-ion battery energy storage system (BESS) for the newly installed Johnson City solar Photovoltaic array. Solar energy is stored in the batteries and then discharged/shifted to provide predictable and reliable energy during peak load demand times.	Johnson City, TX	$1,464,707
Vistra Energy Corp.	Electricity Storage	This project installed a BESS to their existing solar facility. The BESS captured excess solar during the day and then discharged during the evening.	McCamey, TX	$1,000,000.00
The University of Texas at Arlington	New Technology	This project is to retrofit two natural gas boilers that produce steam for heating and process loads. The retrofitted boilers have burner management and combustion controls to increase efficiency and reduce NO_x emissions.	Arlington, TX	$74,585
ENSTOR Katy Transportation and Storage, L.P.	New Technology: Oil and Gas	This project will replace eight lean-burn natural gas engine drivers used in natural gas storage compression service with eight remanufactured, more efficient, lower emission engines to reduce NO_x, VOC, and particulate matter emissions. The project also involves installation of a new three-way catalyst to reduce NO_x, VOC, and PM emissions.	Katy, TX	$2,631,091
Nelson Gardens Energy, LLC	Electricity Storage	This project is to design and install a hybrid system of landfill gas-to-energy, solar energy, and flow battery storage on a closed landfill. It will integrate 5.81 MW DC solar generation with 13 vanadium flow batteries (78 kW each) totaling approximately 1.014 MW.	San Antonio, TX	$2,011,101
Maverick Natural Resources, LLC.	New Technology: Oil and Gas	The project is to electrify actuating valves on 423 wellheads and reduce the pollutants from facilities and other stationary sources in Texas. This project will reduce emissions and eliminate over-ranging by replacing existing valves with an electric valve and actuator, powered by solar energy. Implementing this project will reduce VOCs and H_2S.	Tyler-Longview, TX	$1,987,851
Oxy USA Inc.	New Technology: Oil and Gas	This project is to replace two gas-engine-driven reciprocating compressors with two 1,500 HP electric motor-driven reciprocating compressors and to install a new relief header, which will tie into the existing flare system. Also, the project is to supplement an existing gas-fired line heater with a shell and tube heat exchanger. The project will reduce hydrocarbon, hazardous air pollutants, and CO_2 emissions.	Midland, TX	$1,260,184

Grantee	Project Category	Project Description	Location	Total Grant Amount
Farmers Electric Cooperative, Inc.	Electricity Storage	This project will provide a source of non-dispatchable power via an up to 2 MW capacity (AC) photovoltaic (PV) solar array and a dispatchable 1 MW capacity battery energy storage solution (BESS) to increase capacity during moderate to high power requirement periods.	Dallas-Fort Worth, TX	$2,273,452
PwrPac, LLC	Electricity Storage	This project contains a Li-Ion BESS with a solar array with 1.05 MW power capacity. The system will be maintained for a minimum period of 7 years and is primarily intended to help the Texas Electric Grid with resilience and support in times of load shedding or peak loads.	Midland, TX	$590,000
CR Permian Processing, LLC.	New Technology: Oil and Gas	This project is to replace a 4,735 horsepower (HP) lean-burn natural gas compressor with a 5,000 HP electric compressor. The project will reduce NO_x, VOC, PM, SO_2, CO, HCHO, and GHG.	Reeves, TX	$644,977
Colt Midstream, LLC	New Technology: Oil and Gas	This project will repower two natural gas compressors with new natural gas compressors. The project will reduce NO_x and formaldehydes.	Erath, TX	$1,230,027
Colt Midstream, LLC	New Technology: Oil and Gas	This project is to repower two in-service compressors, replacing two of the engines with modern S5 engines, which will result in NO_x and formaldehyde reduction.	Eastland, TX	$401,792
Unbridled Resources, LLC	New Technology: Oil and Gas	This project is to electrify actuating valves powered by solar energy on 264 wellheads. As a result, the project will eliminate emissions of VOCs and H_2S from these well locations.	Hemphill, Wheeler, Roberts, Ochiltree, Lipscomb, and Hansford, TX	$1,254,755
Grand Total				**$22,248,600**

Appendix 15. PASPP Projects

Texas Emissions Reduction Plan
Port Authority Studies and Pilot Projects Program

Project Descriptions
FY 2018 through FY 2024

Grantee	Project Description	Location	Total Grant Amount
Port of Houston Authority	The project conducts a study of incentives to encourage cargo movement that reduces emissions of nitrogen oxides (NO_X) and particulate matter (PM) at port facilities. It also includes a pilot program to implement and evaluate the use of electric-powered terminal tractors at port facilities.	Houston, TX	$841,597
Port of Corpus Christi Authority	The project is an emission reduction pilot study at the Port of Corpus Christi Authority (PCCA) Avery Point. It identifies control strategies for vessels at berth. The project seeks to reduce overall NO_X, $PM_{2.5}$, and SO_X from diesel engines.	Corpus Christi, TX	$1,000,000
Galveston Wharves Board of Trustees	The project will partner with Texas A&M Galveston to pilot a microgrid demonstration, pairing grant-funded microgrid technology with existing port shore infrastructure and one or more large, ocean-going cargo vessels. If the results of the study indicate that the technology is scalable and costs are not prohibitive, the port will implement cold ironing for cargo operations whose ships are cold-iron ready, effectively eliminating NO_X, SO_X, and PM emissions.	Galveston, TX	$1,000,000
Grand Total			**$2,841,597**

Appendix 16. THIVE Projects Selected for an Award

Texas Emissions Reduction Plan
Texas Hydrogen Infrastructure, Vehicle, and Equipment Grant Program

Project Description
FY 2024

Applicant/Grantee	Priority Category[1]	Project Description	Primary Area	Total Grant Amount
Talke USA, Inc.	1	Replacement of 2 On-Road Haul Trucks	Houston-Galveston-Brazoria	$1,615,144
Savage Services Corporation	2	Conversion of 4 On-Road Haul Trucks	San Antonio	$1,999,000
Simoneta Ltd.	2	New Purchase of 10 On-Road Class 8 Vehicles	Houston-Galveston-Brazoria	$3,500,000
Medallion Transport & Logistics LLC	2	New Purchase of 10 On-Road Class 8 Vehicles	Houston-Galveston-Brazoria	$3,250,000
Simoneta Ltd.	2	New Purchase of 5 On-Road Class 8 Vehicles	Houston-Galveston-Brazoria	$1,450,000
Simoneta Ltd.	2	New Purchase of 5 On-Road Class 8 Vehicles	Dallas-Fort Worth	$1,450,000
Simoneta Ltd.	2	New Purchase of 5 On-Road Class 8 Vehicles	Houston-Galveston-Brazoria	$1,800,000
Simoneta Ltd.	2	New Purchase of 5 On-Road Class 8 Vehicles (3 of 5 funded)	San Antonio	$935,856
Grand Total				**$16,000,000**

[1]Priority Category 1 is for projects to replace on-road heavy-duty vehicles with newer on-road hydrogen vehicles. Priority Category 2 is for projects to purchase, lease, repower, or convert on-road heavy-duty vehicles with a powertrain that runs on or is powered by hydrogen.