TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AGENDA ITEM REQUEST

for Proposed State Implementation Plan Revision

AGENDA REQUESTED: May 13, 2015

DATE OF REQUEST: April 24, 2015

INDIVIDUAL TO CONTACT REGARDING CHANGES TO THIS REQUEST, IF NEEDED: Joyce Spencer-Nelson, (512) 239-5017

CAPTION: Docket No. 2015-0118-SIP. Consideration for publication of, and hearing on, the proposed Federal Clean Air Act (FCAA), Section 110(a)(1) and (2) Infrastructure and Transport State Implementation Plan (SIP) Revision for the 2012 primary annual fine particulate matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS).

The proposed SIP revision would outline the requirements of FCAA, Section 110(a)(2)(A) through (M), and the Texas provisions supporting the requirements for the 2012 $PM_{2.5}$ NAAQS. These requirements include basic program elements such as enforceable emission limitations and control measures, air quality monitoring and modeling, a permitting program, adequate funding and personnel, authority under state law to carry out the plan, emissions reporting, emergency powers, public participation, and fee collection. This proposed revision would also include a technical demonstration to support the determination that Texas meets the interstate transport requirements of Section 110(a)(2)(D)(i)(I). (Amanda Sharp, Amy Browning) (Non-Rule Project No. 2014-029-SIP-NR)

Steve Hagle, P.E.
Deputy Director

David Brymer
Division Director

Joyce Nelson
Agenda Coordinator

Copy to CCC Secretary? NO

Texas Commission on Environmental Quality
Interoffice Memorandum

To: Commissioners **Date:** April 24, 2015

Thru: Bridget C. Bohac, Chief Clerk
Richard A. Hyde, P.E., Executive Director

From: Steve Hagle, P.E., Deputy Director
Office of Air

Docket No.: 2015-0118-SIP

Subject: Commission Approval for the Proposed Federal Clean Air Act, §110(a)(1) and (2) Infrastructure and Transport SIP Revision for the 2012 Primary Annual $PM_{2.5}$ NAAQS
Non-Rule Project No. 2014-029-SIP-NR

Background and reason(s) for the SIP revision:
The Federal Clean Air Act (FCAA), Section 110(a)(1) requires each state to submit a state implementation plan (SIP) within three years of promulgation of a new or revised National Ambient Air Quality Standard (NAAQS) to address infrastructure and transport requirements. On December 14, 2012, the United States Environmental Protection Agency (EPA) strengthened the NAAQS for fine particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$). The revised primary annual $PM_{2.5}$ standard was set at 12.0 micrograms per cubic meter ($\mu g/m^3$), replacing the previous 1997 standard of 15.0 $\mu g/m^3$.

FCAA, §110(a)(2) specifies the substantive program elements infrastructure SIP revisions must address such as enforceable emission limits and control measures; air quality monitoring and modeling; a permitting program; adequate funding and personnel; authority under state law; emissions reporting; emergency powers; public participation; and fee collection. Transport requirements in FCAA, §110(a)(2)(D)(i)(I) specifically require SIPs to contain adequate provisions to prohibit emissions that significantly contribute to nonattainment or interfere with maintenance of a NAAQS in another state.

This proposed SIP revision would outline the provisions in place in the Texas SIP that demonstrate how Texas meets the infrastructure and transport requirements for the 2012 $PM_{2.5}$ NAAQS. The Texas Commission on Environmental Quality (TCEQ) is required to submit this SIP revision to the EPA by December 14, 2015.

Scope of the SIP revision:
This proposed SIP revision documents that the Texas SIP at 40 Code of Federal Regulations Part 52, Subpart SS contains all the infrastructure elements required by FCAA, §110(a)(2) for the implementation, maintenance, and enforcement of the 2012 primary annual $PM_{2.5}$ NAAQS. The infrastructure demonstration explains how the existing Texas statutes and rules allow the state to meet its obligations under the FCAA; therefore, this proposed SIP revision has been developed as an expansion of the existing Legal Authority section of Texas' SIP. A detailed technical demonstration is included to demonstrate compliance with §110(a)(2)(D)(i)(I) requirements regarding interstate transport of emissions.

Re: Docket No. 2015-0118-SIP

A.) Summary of what the SIP revision will do:
The infrastructure demonstration of the proposed SIP revision outlines the requirements of FCAA, §110(a)(2)(A) through (M) and the Texas statutes and rules that allow the TCEQ to meet those requirements. This proposed SIP revision also includes a more detailed technical demonstration to meet the interstate transport requirements of FCAA, §110(a)(2)(D)(i)(I). Since this infrastructure element requires more than statutory authority, the requirement is discussed in this proposed SIP revision. The technical demonstration includes an analysis of $PM_{2.5}$ trends and discussion of existing $PM_{2.5}$ control strategies to demonstrate that emissions from Texas do not contribute significantly to nonattainment or interfere with maintenance of the 2012 $PM_{2.5}$ NAAQS in another state.

B.) Scope required by federal regulations or state statutes:
Section 110(a)(1) of the FCAA requires states to submit a SIP revision to provide for the implementation, maintenance, and enforcement of the NAAQS. The infrastructure portion of this SIP revision must demonstrate to the EPA that requirements for basic program elements prescribed in §110(a)(2)(A) through (M) are addressed within three years of the promulgation of any new or revised NAAQS. Infrastructure and transport SIP revisions to address the 2012 $PM_{2.5}$ NAAQS are due to the EPA December 14, 2015.

C.) Additional staff recommendations that are not required by federal rule or state statute:
Staff has no additional recommendations.

Statutory authority:
The EPA published the final rule establishing the 2012 NAAQS for $PM_{2.5}$ in the *Federal Register* (FR) on January 15, 2013 (78 FR 3086). The authority to propose and adopt the SIP revision is derived from FCAA, §110, which requires states to submit SIP revisions that contain enforceable measures to achieve the NAAQS, and other general and specific authority in Texas Water Code, Chapters 5 and 7, and Texas Health and Safety Code, Chapter 382.

Effect on the:

A.) Regulated community:
No effects on the regulated community are anticipated due to this proposed SIP revision. However, if the EPA were to issue a federal implementation plan (FIP) to address interstate transport of emissions from Texas, there could ultimately be effects on the regulated community.

B.) Public:
This SIP revision would have no new effect on the public.

C.) Agency programs:
This proposed SIP revision would have no new effect on agency programs.

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Stakeholder meetings:
The proposed SIP revision would undergo a public review and comment period, including a public hearing.

Potential controversial concerns and legislative interest:
Section 110(a)(2)(D) of the FCAA requires infrastructure SIPs to contain adequate provisions to prevent emissions from interfering with visibility in another state. On November 24, 2014, the EPA proposed to partially disapprove the portion of the Texas infrastructure SIP related to Regional Haze, §110(a)(2)(D)(i)(II), and issue a FIP. As a result, the EPA proposed disapproval of the portions of Texas' infrastructure SIP revisions addressing the visibility requirements of FCAA, §110(a)(2)(D)(i)(II) for the 1997 $PM_{2.5}$ NAAQS, the 1997 ozone NAAQS, the 2006 $PM_{2.5}$ NAAQS, the 2008 ozone NAAQS, the 2010 NO_2 NAAQS, and the 2010 SO_2 NAAQS. The EPA proposes to find that the controls in the proposed FIP will serve to prevent emissions from sources in Texas from interfering with measures required to protect visibility in other states. The TCEQ maintains that its 2009 Regional Haze SIP meets all criteria for approval. This proposed SIP revision relies on provisions contained in the 2009 Regional Haze SIP to meet the visibility requirement of §110(a)(2)(D)(i)(II). The EPA is scheduled to take final action by September 4, 2015.

The EPA previously finalized a disapproval of parts of previous Texas infrastructure SIP revisions because the TCEQ did not expand its Prevention of Significant Deterioration permitting program to include greenhouse gases. Texas challenged this disapproval in the United States Court of Appeals for the Fifth Circuit; however, the case was abated while litigation was ongoing over the greenhouse gas rules. The TCEQ has since expanded its permitting program to cover greenhouse gases; however, the lawsuit has not yet been dismissed.

Texas was included in the EPA's Cross State Air Pollution Rule (CSAPR), which concerns the §110(a)(2)(D)(i)(I) interstate transport requirements, for ozone season NO_X, annual NO_X, and annual SO_2 due to the EPA's determination that Texas significantly contributes to nonattainment or interferes with maintenance of the 1997 eight-hour ozone NAAQS and the 1997 and 2006 $PM_{2.5}$ NAAQS in other states. While CSAPR does not specifically cover the 2012 $PM_{2.5}$ NAAQS, since the rule was finalized prior to the revision of the NAAQS, litigation over the rule is still ongoing and could potentially affect interstate transport requirements in the future.

Will this SIP revision affect any current policies or require development of new policies?
This proposed SIP revision should not affect any current policies or require development of new policies.

Re: Docket No. 2015-0118-SIP

What are the consequences if this SIP revision does not go forward? Are there alternatives to the SIP revision?
The deadline to submit an adopted $PM_{2.5}$ infrastructure and transport SIP revision is December 14, 2015 as required by §110(a) of the FCAA. Failure to submit a SIP revision by the deadline could initiate a two-year clock for the promulgation of a FIP for Texas.

Key points in the proposal SIP revision schedule:
Anticipated proposal date: May 13, 2015
Anticipated public hearing date (if any): June 16, 2015
Anticipated public comment period: May 15, 2015 through June 22, 2015
Anticipated adoption date: November 4, 2015

Agency contacts:
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cc: Chief Clerk, 2 copies
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REVISIONS TO THE STATE OF TEXAS AIR QUALITY IMPLEMENTATION PLAN FEDERAL CLEAN AIR ACT, SECTIONS 110(a)(1) AND (2) INFRASTRUCTURE AND TRANSPORT

INFRASTRUCTURE DEMONSTRATION AND TRANSPORT PLAN FOR PRIMARY ANNUAL FINE PARTICULATE MATTER ($PM_{2.5}$)

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. BOX 13087
AUSTIN, TEXAS 78711-3087

FEDERAL CLEAN AIR ACT, SECTIONS 110(a)(1) AND (2) INFRASTRUCTURE AND TRANSPORT STATE IMPLEMENTATION PLAN REVISION FOR THE 2012 $PM_{2.5}$ NATIONAL AMBIENT AIR QUALITY STANDARD

Project Number 2014-029-SIP-NR

Proposal
May 13, 2015

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EXECUTIVE SUMMARY

This proposed revision to the state implementation plan (SIP) is intended to meet the infrastructure and transport requirements of the Federal Clean Air Act (FCAA), §110(a) for fine particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$). States are required by §110(a)(1) of the FCAA to submit SIP revisions within three years of promulgation of a new or revised National Ambient Air Quality Standard (NAAQS) to address infrastructure and transport requirements. On December 14, 2012, the United States Environmental Protection Agency (EPA) strengthened the NAAQS for $PM_{2.5}$. The revised primary annual $PM_{2.5}$ standard, set at 12.0 micrograms per cubic meter ($\mu g/m^3$), replaced the previous 1997 standard of 15.0 $\mu g/m^3$. The EPA retained the 2006 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$. On December 18, 2014, the EPA issued final area designations for the 2012 $PM_{2.5}$ NAAQS. The EPA designated all areas in Texas unclassifiable/attainment.

This proposed SIP revision would document that the Texas SIP at 40 Code of Federal Regulations Part 52, Subpart SS contains all the infrastructure elements required by FCAA, §110(a)(2) for the implementation, maintenance, and enforcement of the 2012 primary annual $PM_{2.5}$ NAAQS. Because the infrastructure demonstration explains how the existing Texas statutes and rules allow the state to meet its obligations under the FCAA, this proposed SIP revision has been developed as an expansion of the existing Section V: *Legal Authority* section of Texas' SIP. This expanded section is unique to infrastructure SIP revisions that are submitted to meet the requirements of FCAA, §110(a)(1), and demonstrates that the state can provide for the implementation, maintenance, and enforcement of the NAAQS.

The infrastructure demonstration outlines the requirements of FCAA, §110(a)(2)(A) through (M) and the Texas statutes and rules that allow the Texas Commission on Environmental Quality to meet those requirements. The requirements include basic program elements such as enforceable emission limitations and control measures, air quality monitoring and modeling, a permitting program, adequate funding and personnel, authority under state law to carry out the plan, emissions reporting, emergency powers, public participation, and fee collection.

This proposed SIP revision also includes a more detailed technical demonstration to meet the interstate transport requirements of FCAA, §110(a)(2)(D)(i)(I). Since this infrastructure element requires more than statutory authority, the requirement is discussed in the Section VI: *Control Strategy* portion of this proposed SIP revision. The technical demonstration includes an analysis of $PM_{2.5}$ trends and discussion of existing $PM_{2.5}$ control strategies to demonstrate that emissions from Texas do not contribute significantly to nonattainment or interfere with maintenance of the 2012 $PM_{2.5}$ NAAQS in another state.

SECTION V: LEGAL AUTHORITY

A. General (Revised)
B. Infrastructure Demonstration for Lead (No change)
   1. 2008 Lead National Ambient Air Quality Standard (No change)
C. Infrastructure Demonstration for Nitrogen Dioxide (No change)
   1. 2010 Nitrogen Dioxide National Ambient Air Quality Standard (No change)
D. Infrastructure Demonstration for Ozone (No Change)
   1. 2008 Ozone National Ambient Air Quality Standard (No Change)
E. Infrastructure Demonstration for Sulfur Dioxide (No Change)
   1. 2010 SO_2 National Ambient Air Quality Standard (No Change)
F. Infrastructure Demonstration for $PM_{2.5}$ (New)
   1. 2012 $PM_{2.5}$ National Ambient Air Quality Standard (New)

SECTION V-A: LEGAL AUTHORITY

General

The Texas Commission on Environmental Quality (TCEQ) has the legal authority to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to control the quality of the state's air, including maintaining adequate visibility.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2011, and 2013. In 1989, the TCAA was codified as Chapter 382 of the THSC.

Originally, the TCAA stated that the Texas Air Control Board (TACB) is the state air pollution control agency and is the principal authority in the state on matters relating to the quality of air resources. In 1991, the legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both the Texas Water Code and the TCAA. Specifically, the authority of the TNRCC is found in Chapters 5 and 7. Chapter 5, Subchapters A - F, H - J, and L, include the general provisions, organization, and general powers and duties of the TNRCC, and the responsibilities and authority of the executive director. Chapter 5 also authorizes the TNRCC to implement action when emergency conditions arise and to conduct hearings. Chapter 7 gives the TNRCC enforcement authority. In 2001, the 77th Texas Legislature continued the existence of the TNRCC until September 1, 2013, and changed the name of the TNRCC to the TCEQ. In 2009, the 81st Texas Legislature, during a special session, amended section 5.014 of the Texas Water Code, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act. In 2011, the 82nd Texas Legislature continued the existence of the TCEQ until 2023.

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A - D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; to conduct research and investigations; to enter property and examine records; to prescribe monitoring requirements; to institute enforcement proceedings; to enter into contracts and execute instruments; to formulate rules; to issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; to conduct hearings; to establish air quality control regions; to encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and to establish and operate a system of permits for construction or modification of facilities.

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also may make recommendations to the commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA and the rules or orders of the commission.

Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the Federal Clean Air Act; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; establish gasoline volatility and low emission diesel standards; and fund and authorize participating counties to implement vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

Applicable Law

The following statutes and rules provide necessary authority to adopt and implement the state implementation plan (SIP). The rules listed below have previously been submitted as part of the SIP.

Statutes

All sections of each subchapter are included, unless otherwise noted.

TEXAS HEALTH & SAFETY CODE, Chapter 382	September 1, 2013
TEXAS WATER CODE	September 1, 2013

Chapter 5: Texas Natural Resource Conservation Commission
- Subchapter A: General Provisions
- Subchapter B: Organization of the Texas Natural Resource Conservation Commission
- Subchapter C: Texas Natural Resource Conservation Commission
- Subchapter D: General Powers and Duties of the Commission
- Subchapter E: Administrative Provisions for Commission
- Subchapter F: Executive Director (except §§5.225, 5.226, 5.227, 5.2275,5.231, 5.232, and 5.236)
- Subchapter H: Delegation of Hearings
- Subchapter I: Judicial Review
- Subchapter J: Consolidated Permit Processing
- Subchapter L: Emergency and Temporary Orders (§§5.514, 5.5145, and 5.515 only)
- Subchapter M: Environmental Permitting Procedures (§5.558 only)

Chapter 7: Enforcement
- Subchapter A: General Provisions (§§7.001, 7.002, 7.0025, 7.004, and 7.005 only)
- Subchapter B: Corrective Action and Injunctive Relief (§7.032 only)
- Subchapter C: Administrative Penalties
- Subchapter D: Civil Penalties (except §7.109)
- Subchapter E: Criminal Offenses and Penalties: §§7.177, 7.179-7.183

Rules

All of the following rules are found in 30 Texas Administrative Code, as of the following latest effective dates:

Chapter 7: Memoranda of Understanding, §§7.110 and 7.119	December 13, 1996 and May 2, 2002
Chapter 19: Electronic Reporting	November 11, 2010
Chapter 35: Subchapters A-C, K: Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions	July 20, 2006

Chapter 39: Public Notice, §§39.402(a)(1) - (6), (8), and (10) - (12), 39.405(f)(3) and (g), (h)(1)(A) - (4), (6), (8) - (11), (i) and (j), 39.407, 39.409, 39.411(a), (e)(1) - (4)(A)(i) and (iii), (4)(B), (5)(A) and (B), and (6) - (10), (11)(A)(i) and (iii) and (iv), (11)(B) - (F), (13) and (15), and (f)(1) - (8), (g) and (h), 39.418(a), (b)(2)(A), (b)(3), and (c), 39.419(e), 39.420 (c)(1)(A) - (D)(i)(I) and (II), (D)(ii), (c)(2), (d) - (e), and (h), and 39.601 - 39.605	April 17, 2014
Chapter 55: Requests for Reconsideration and Contested Case Hearings; Public Comment, §§55.150, 55.152(a)(1), (2), (5), and (6) and (b), 55.154(a), (b), (c)(1) - (3), and (5), and (d) - (g), and 55.156(a), (b), (c)(1), (e), and (g)	June 24, 2010
Chapter 101: General Air Quality Rules	April 17, 2014
Chapter 106: Permits by Rule, Subchapter A	April 17, 2014
Chapter 111: Control of Air Pollution from Visible Emissions and Particulate Matter	February 6, 2014
Chapter 112: Control of Air Pollution from Sulfur Compounds	July 16, 1997
Chapter 113: Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants	May 14, 2009
Chapter 114: Control of Air Pollution from Motor Vehicles	October 2, 2014
Chapter 115: Control of Air Pollution from Volatile Organic Compounds	October 2, 2013
Chapter 116: Permits for New Construction or Modification	July 31, 2014
Chapter 117: Control of Air Pollution from Nitrogen Compounds	May 2, 2013
Chapter 118: Control of Air Pollution Episodes	March 5, 2000
Chapter 122: §122.122: Potential to Emit	April 17, 2014
Chapter 122: §122.215: Minor Permit Revisions	June 3, 2001
Chapter 122: §122.216: Applications for Minor Permit Revisions	June 3, 2001
Chapter 122: §122.217: Procedures for Minor Permit Revisions	December 11, 2002
Chapter 122: §122.218: Minor Permit Revision Procedures for Permit Revisions Involving the Use of Economic Incentives, Marketable Permits, and Emissions Trading	June 3, 2001

SECTION V-D-1: INFRASTRUCTURE DEMONSTRATION FOR THE 2012 $PM_{2.5}$ NATIONAL AMBIENT AIR QUALITY STANDARD

A. Background

Section 110(a)(1) of the Federal Clean Air Act (FCAA) requires states to submit a state implementation plan (SIP) revision to provide for the implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS). States are required to submit the infrastructure portion of this SIP requirement to the United States Environmental Protection Agency (EPA) to demonstrate that basic program elements have been addressed within three years of the promulgation of any new or revised NAAQS. Section 110(a)(2) lists the elements that these SIP submissions must contain.

On December 14, 2012, the EPA strengthened the NAAQS for fine particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$). The revised 2012 primary annual $PM_{2.5}$ standard, set at 12.0 micrograms per cubic meter (μg/m^3), replaced the previous 1997 standard of 15.0 μg/m^3. The EPA retained the 2006 24-hour $PM_{2.5}$ standard at 35 μg/m^3.

One infrastructure obligation, specified in FCAA, §110(a)(2)(D)(i)(I), requires states to adequately address the interstate transport of criteria pollutants that contribute to nonattainment or interfere with maintenance of the NAAQS in other states. Guidance on development and submission of infrastructure SIPs issued by the EPA on September 13, 2013[1] did not address §110(a)(2)(D)(i)(I). To date, the EPA has not published specific transport guidance for the 2012 primary annual $PM_{2.5}$ NAAQS, but in order to meet statutory deadlines for submittal of infrastructure SIPs, states do not have the option of waiting for the EPA to provide additional guidance before proceeding with infrastructure and transport SIP development, review, and submittal. The TCEQ is proceeding with this proposed SIP revision to ensure that there were adequate opportunities for public notice and comment as required by state and federal statutes. A detailed technical analysis discussion demonstrating that Texas specifically addresses the interstate transport requirements in the FCAA for the 2012 $PM_{2.5}$ NAAQS is contained in Chapter 2: *Required Control Strategy Elements* of this SIP revision, and revises Section VI: *Control Strategy* of the Texas SIP.

This proposed SIP revision is intended to provide an update of the §110(a)(2) infrastructure requirements for the 2012 $PM_{2.5}$ NAAQS. This chapter outlines FCAA, §110(a)(2)(A) through (M) and includes various Texas provisions that support the conclusion that Texas meets the requirements of each section. The federally enforceable SIP for Texas is documented at 40 Code of Federal Regulations Part 52, Subpart SS.

The infrastructure demonstration is an expansion of the Legal Authority section of Texas' SIP that provides additional information about how the existing statutes and rules allow Texas to meet the §110(a)(2) infrastructure requirements of the FCAA. Therefore, this proposed SIP revision contains an expanded infrastructure section under the SIP Legal Authority. This infrastructure section is intended to satisfy the §110(a)(1) requirement to provide for the implementation, maintenance, and enforcement of the NAAQS. This infrastructure section will be updated as part of the infrastructure SIP revisions that Texas is required to submit as new or

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[1] Memorandum from Steven D. Page, Director of the Office of Air Quality Planning and Standards, September 13, 2013, *Guidance on Infrastructure State Implementation Plan (SIP) Elements Under Clean Air Act Sections 110(a)(1) and 110(a)(2)*. EPA Office of Air Quality Planning and Standards. (http://www.epa.gov/airquality/urbanair/sipstatus/docs/Guidance_on_Infrastructure_SIP_Elements_Multipollutant_FINAL_Sept_2013.pdf)

revised NAAQS are promulgated, but it will not otherwise be included in other Texas SIP revisions. Section A of the Legal Authority contains the basic listing of Texas' legal framework for adopting SIP revisions and will be the default Legal Authority for Texas SIP revisions that are not specifically submitted to meet the FCAA, §110(a)(1) infrastructure demonstration requirement.

The TCEQ acknowledges that proposed changes to federal regulations may have future impacts on how the TCEQ meets the requirements of FCAA, §110(a)(2); however, this proposed SIP revision reflects the methods and means by which Texas meets these requirements at the time of this proposed SIP revision. Should future federal rule changes necessitate state rule changes, the TCEQ will act appropriately at that time.

B. Texas Statutory Authority

The TCEQ has the legal authority to implement, maintain, and enforce the NAAQS. Texas' legal authority has been submitted to the EPA as part of various SIP revisions that have been approved by the EPA.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. The Legislature amended the TCAA in 1969, 1971, 1973, 1979, 1985, 1987, 1989, 1991, 1993, 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009, and 2011. In 1989, the TCAA was codified as Chapter 382 of the THSC.

Originally, the TCAA stated that the Texas Air Control Board (TACB) was the state air pollution control agency and was the principal authority in the state on matters relating to the quality of air resources. In 1991, the legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). With the creation of the TNRCC, the authority over air quality is found in both the Texas Water Code and the TCAA. Specifically, the authority of the commission is found in Texas Water Code, Chapters 5 and 7. Chapter 5, Subchapters A - F, H - J, and L, include the general provisions, organization, and general powers and duties of the commission, and the responsibilities and authority of the executive director. Chapter 5 also authorizes the commission to implement action when emergency conditions arise and to conduct hearings. Chapter 7 gives the commission enforcement authority. In 2001, the 77th Texas Legislature continued the existence of the commission until September 1, 2013, and changed the name of the TNRCC to the TCEQ. In 2009, the 81st Texas Legislature, during a special session, amended the Texas Water Code, §5.014, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act. In 2011, the 82nd Texas Legislature continued the existence of the TCEQ until 2023.

The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A through D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; conduct research and investigations; enter property and examine records; prescribe monitoring requirements; institute enforcement proceedings; enter into contracts and execute instruments; formulate rules; issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; conduct hearings; establish air quality control regions; encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and establish and operate a system of permits for construction or modification of facilities.

Local government authority concerning air quality matters is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. Local governments may also make recommendations to the commission concerning any action of the TCEQ that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA or the rules or orders of the commission.

Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the FCAA; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; and fund and authorize participating counties to implement vehicle repair assistance, retrofit and accelerated vehicle retirement programs.

Statutory Authority

The following statutory authority allows for the establishment and operation of the TCEQ and the adoption and implementation of all §110(a)(2) requirements.

Texas Clean Air Act, Texas Health and Safety Code, Chapter 382, except Subchapter I.

Texas Water Code:

§5.013(a)(11) & (13)	GENERAL JURISDICTION OF COMMISSION
§5.051.	COMMISSION
§5.052.	MEMBERS OF THE COMMISSION; APPOINTMENT
§5.053.	ELIGIBILITY FOR MEMBERSHIP
§5.054.	REMOVAL OF COMMISSION MEMBERS
§5.059.	CONFLICT OF INTEREST
§5.060.	LOBBYIST PROHIBITION
§5.101.	SCOPE OF SUBCHAPTER
§5.102.	GENERAL POWERS
§5.103.	RULES
§5.104.	MEMORANDA OF UNDERSTANDING
§5.105.	GENERAL POLICY
§5.106.	BUDGET APPROVAL
§5.107.	ADVISORY COMMITTEES, WORK GROUPS, AND TASK FORCES
§5.115.	PERSONS AFFECTED IN COMMISSION HEARINGS; NOTICE OF APPLICATION
§5.117.	MANDATORY ENFORCEMENT HEARING
§5.120.	CONSERVATION AND QUALITY OF ENVIRONMENT
§5.133.	ACTIONS IN MEXICO
§5.1733.	ELECTRONIC POSTING OF INFORMATION
§5.223.	ADMINISTRATIVE ORGANIZATION OF COMMISSION
§5.230.	ENFORCEMENT
§5.233.	GIFTS AND GRANTS
§5.234.	APPLICATIONS AND OTHER DOCUMENTS
§5.237.	OPERATING FUND
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C. Texas Regulatory Authority

The TCEQ has promulgated rules implementing statutory authority to meet the requirements of both the FCAA and the TCAA. These rules were submitted to the EPA in various SIP revisions and have been approved in the *Federal Register* (FR) or are pending EPA review. Rules that are relevant for each FCAA, §110(a)(2) requirement are noted below.

FCAA, §110(a)(2)(A)

Federal Requirement

(A) include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this Act;

Texas Requirement
The TCEQ has promulgated rules to implement and enforce the NAAQS and other air quality standards. These rules include programs for banking and trading of emissions, as well as permits and fees. Periodic revisions to the SIP establish timetables and schedules for improving the air quality in nonattainment areas.

The following chapters of Title 30 Texas Administrative Code (TAC) contain rules relevant for this federal requirement:

Chap. 7	Memoranda of Understanding
Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 111	Control of Air Pollution from Visible Emissions and Particulate Matter
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 113	Standards of Performance for Hazardous Air Pollutants and for Designated Facilities and Pollutants
Chap. 114	Control of Air Pollution from Motor Vehicles
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds
Chap. 118	Control of Air Pollution Episodes

FCAA, §110(a)(2)(B)
Federal Requirement

(B) provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality, and (ii) make such data available to the Administrator;

Texas Requirement
The TCEQ maintains a network of air quality monitors to measure air quality data that is reported to the EPA on a regular basis. Texas submits annual monitoring plans to the EPA that describe how the state has complied with monitoring requirements and explains any proposed changes.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 111	Control of Air Pollution from Visible Emissions and Particulate Matter
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds

FCAA, §110(a)(2)(C)
Federal Requirement

(C) include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D;

Texas Requirement
The TCEQ has established rules governing the enforcement of control measures, including attainment plans and permitting programs that regulate construction and modification of stationary sources.

On January 6, 2014, the EPA published approval of Texas' public participation requirements for air quality permits (FR 79 551).[2] On November 10, 2014, the EPA published partial approval of the October 2010 and April 2014 SIP submittals that revise Texas' Prevention of Significant Deterioration (PSD) program to provide for the regulation of greenhouse gas (GHG) emissions and clarify the applicability of best available control technology for all PSD permit applications (79 FR 66626).[3] The EPA also approved revisions to the New Source Review (NSR) permitting program as consistent with federal requirements for PSD permitting of GHG emissions. Texas has a robust, SIP-approved permitting program and therefore has met the infrastructure requirements of §110(a)(2).[4]

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 35	Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions; Subchapters A, B, C, K
Chap. 39	Public Notice
Chap. 55	Requests for Reconsideration and Contested Case Hearings; Public Notice
Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds

FCAA, §110(a)(2)(D)
Federal Requirement

(D) contain adequate provisions (i) prohibiting, consistent with the provisions of this title, any source or other type of emissions activity from emitting any air pollutant in amounts which will (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility,(ii) insuring compliance with the applicable requirements of sections 126 and 115 (relating to interstate and international pollution abatement);

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[2] Approval and Promulgation of Implementation Plans; Texas; Prevention of Significant Deterioration; Greenhouse Gas Tailoring Rule Revisions, 79 FR 66626 (November 10, 2014).
[3] Approval and Promulgation of Implementation Plans; Texas; Public Participation for Air Quality Permit Applications, 79 FR 551 (January 6, 2014).
[4] Although the EPA finalized a previous disapproval of the Texas infrastructure SIP for not containing provisions for permitting greenhouse gases, Texas has since updated its permitting program and SIP to allow for greenhouse gas permitting. The lawsuit is currently still pending in the United States Court of Appeals for the Fifth Circuit, but, as already discussed, the EPA has since fully approved the greenhouse gas permitting provisions of the Texas SIP.

Texas Requirement
This SIP revision includes an interstate transport technical analysis in Section VI: *Control Strategy* to address the requirements of §110(a)(2)(D)(i)(I).

Texas has a SIP-approved PSD and nonattainment NSR permitting program that contains requirements for sources of air pollutants to obtain an approved permit before beginning construction of a facility and before modifying an existing facility (see requirements for §110(a)(2)(C) previously listed). On December 16, 2014, the EPA published a proposed rule to partially disapprove the Texas 2009 Regional Haze SIP revision and issued a federal implementation plan (FIP) (79 FR 74818)[5]. The EPA proposes to find that the controls in the proposed FIP will serve to prevent emissions from sources in Texas from interfering with measures required to protect visibility in other states. The TCEQ maintains that its 2009 Regional Haze SIP meets all criteria for approval. The EPA is scheduled to take final action by September 4, 2015. Regional haze program requirements include progress reports due to the EPA every five years, to demonstrate progress toward the visibility goal. The 2014 Five-Year Regional Haze Progress Report SIP Revision was submitted to the EPA in March 2014. Another Regional Haze SIP is due in 2018 and every 10 years thereafter, through 2064.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 101	General Air Quality Rules
Chap. 122	Subchapter E, Division 2, Clean Air Interstate Rule

FCAA, §110(a)(2)(E)
Federal Requirement

(E) provide (i) necessary assurances that the State (or, except where the Administrator deems inappropriate, the general purpose local government or governments, or a regional agency designated by the State or general purpose local governments for such purpose) will have adequate personnel, funding, and authority under State (and, as appropriate, local) law to carry out such implementation plan (and is not prohibited by any provision of Federal or State law from carrying out such implementation plan or portion thereof), (ii) requirements that the state comply with the requirements respecting State boards under section 128, and (iii) necessary assurances that, where the State has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the State has responsibility for ensuring adequate implementation of such plan provision;

Texas Requirement
The TCEQ has consistently demonstrated historically and in SIP revisions that the state has adequate personnel, funding, and authority under state law to carry out the SIP. The TCEQ has various Memoranda of Understanding and Memoranda of Agreement with other state and local agencies. Local governments have their own responsibilities and privileges regarding the protection of air quality as established by the Texas legislature.

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[5] Approval and Promulgation of Implementation Plans; Texas and Oklahoma; Regional Haze State Implementation Plans; Interstate Transport State Implementation Plan to Address Pollution Affecting Visibility and Regional Haze; Federal Implementation Plan for Regional Haze and Interstate Transport of Pollution Affecting Visibility, 79 FR 74818 (December 16, 2014).

The TCEQ relies on the complete statutory and regulatory authority as referenced throughout this document. This statutory authority ensures that Texas can meet the requirements of this section, including the requirements of §128 of the FCAA. The TCEQ also regularly submits a legal authority with SIP revisions submitted to the EPA.

FCAA, §110(a)(2)(F)
Federal Requirement

(F) require, as may be prescribed by the Administrator: (i) the installation, maintenance, and replacement of equipment, and implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources, (ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and (iii) correlation of such reports by the State agency with any emission limitations or standards established pursuant to this Act, which reports shall be available at reasonable times for public inspection;

Texas Requirement
The TCEQ requires monitoring for air pollutants as part of its NSR permit program. Certain emission sources are required to submit annual emission inventories and periodic reporting of emissions, which provides data that are used in air quality modeling to help Texas prepare SIP revisions. Emissions data are available at reasonable times for public inspection, with some information also available on the TCEQ Web site (https://www.tceq.texas.gov).

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 111	Control of Air Pollution from Visible Emissions and Particulate Matter
Chap. 112	Control of Air Pollution from Sulfur Compounds
Chap. 115	Control of Air Pollution from Volatile Organic Compounds
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification
Chap. 117	Control of Air Pollution from Nitrogen Compounds

FCAA, §110(a)(2)(G)
Federal Requirement

(G) provide for authority comparable to that in section 303 and adequate contingency plans to implement such authority;

Texas Requirement
The TCEQ may issue emergency orders, or issue or suspend air permits as required by an air pollution emergency. In addition, the TCEQ also maintains air quality information in a form readily available to the public on the TCEQ's Today's Texas Air Quality Forecast Web page (http://www.tceq.texas.gov/compliance/monitoring/air/monops/forecast_today.html).

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 35	Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions; Subchapters A, B, C, K
Chap. 118	Control of Air Pollution Episodes

FCAA, §110(a)(2)(H)
Federal Requirement

(H) provide for revision of such plan: (i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of attaining such standard, and (ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements or to otherwise comply with any additional requirements established under this Act;

Texas Requirement
The TCEQ regularly revises the Texas SIP in response to revisions in the NAAQS and the EPA rules. See §110(a)(2)(A) above.

FCAA, §110(a)(2)(I)
Federal Requirement

(I) in the case of a plan or plan revision for an area designated as a nonattainment area, meet the applicable requirements of part D (relating to nonattainment areas);

Texas Requirement
SIP revisions that implement the control strategies necessary to bring a nonattainment area into attainment of the NAAQS are not required by the FCAA to be submitted within three years of the promulgation of a new or revised NAAQS. Therefore, §110(a)(1) does not require this element to be demonstrated as part of an infrastructure SIP submittal (73 FR 16205, at 16206).

FCAA, §110(a)(2)(J)
Federal Requirement

(J) meet the applicable requirements of section 121 (relating to consultation), section 127 (relating to public notification), and part C (relating to prevention of significant deterioration and visibility protection);

Texas Requirement
The TCEQ has an established public participation process for all SIP revisions and permitting programs. On January 6, 2014, the EPA approved revisions to the SIP that establish the public participation requirements for air quality permits (79 FR 551).[6] The TCEQ consults with other state agencies, local agencies, and non-governmental organizations, as well as with the environmental agencies of other states regarding air quality concerns. All major sources in Texas are subject to Texas' SIP-approved PSD program. On March 19, 2009, the TCEQ submitted a Regional Haze SIP. This visibility improvement plan relied primarily on the Clean Air Interstate Rule (CAIR) emission reductions that the EPA previously deemed sufficient to satisfy best available retrofit technology requirements for EGUs. On December 16, 2014, the EPA published a proposed rule to partially disapprove the Texas 2009 Regional Haze SIP revision and issued a FIP (79 FR 74818). The proposal includes upgrades or limits at eight coal-fired plants in Texas. The EPA also proposed to approve the Texas BART rule, but the EPA is replacing the TCEQ's

[6] Approval and Promulgation of Implementation Plans; Texas; Public Participation for Air Quality Permit Applications, 79 FR 551 (January 6, 2014).

reliance on CAIR with a FIP implementing the Cross State Air Pollution Rule (CSAPR) in Texas.[7] The EPA is scheduled to take final action by September 4, 2015.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

Chap. 7	Memoranda of Understanding
Chap. 35	Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions; Subchapters H and K
Chap. 101	General Air Quality Rules
Chap. 116	Control of Air Pollution for New Construction or Modification

FCAA, §110(a)(2)(K)
Federal Requirement

(K) provide for (i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and (ii) the submission, upon request, of data related to such air quality modeling to the Administrator;

Texas Requirement
Air quality modeling is conducted during development of attainment demonstration revisions to the Texas SIP, as appropriate for the state to demonstrate attainment with required NAAQS. Modeling is also a part of the NSR permitting program.

The following chapter of 30 TAC contains rules relevant for this federal requirement:

Chap. 116	Control of Air Pollution for New Construction or Modification

FCAA, §110(a)(2)(L)
Federal Requirement

(L) require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this Act, a fee sufficient to cover (i) the reasonable costs of reviewing and acting upon any application for such a permit, and (ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action), until fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under title V;

Texas Requirement
The TCEQ assesses fees for reviewing permit applications and for enforcing the terms and conditions of permits.

The following chapters of 30 TAC contain rules relevant for this federal requirement:

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[7] Litigation over CSAPR is still ongoing; a second round of oral arguments is scheduled to be heard by the D.C. Circuit Court on February 25, 2015.

Chap. 12	Payment of Fees
Chap. 101	General Air Quality Rules
Chap. 106	Permits by Rule, Subchapter A, General Requirements
Chap. 116	Control of Air Pollution by Permits for New Construction or Modification

FCAA, §110(a)(2)(M)
Federal Requirement

(M) provide for consultation and participation by local political subdivisions affected by the plan.

Texas Requirement

The TCEQ has several cooperative agreements and Memoranda of Understanding with various other state and local agencies and organizations. Consultation with a variety of different organizations is a regular part of the TCEQ's process of developing SIP revisions.

Conclusion

The foregoing demonstrates that Texas has the necessary regulatory and statutory authority to meet the infrastructure requirements of FCAA, §110(a)(1) and (2) for the 2012 primary annual $PM_{2.5}$ NAAQS.

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E. Lead (No change)
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J. Mobile Sources Strategies (No change)
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LIST OF ACRONYMS

AFFP	Alternative Fueling Facilities Program
BPA	Beaumont-Port Arthur
CAIR	Clean Air Interstate Rule
CNG	compressed natural gas
CPA	Texas Comptroller of Public Accounts
CSAPR	Cross-State Air Pollution Rule
CTT	Clean Transportation Triangle
DERI	Diesel Emissions Reduction Incentive
DFW	Dallas-Fort Worth
DTIP	Drayage Truck Incentive Program
EGU	electric generating unit
EPA	United States Environmental Protection Agency
EPN	Emission Point Number
ESL	Energy Systems Laboratory
FCAA	Federal Clean Air Act
FIP	federal implementation plan
FR	*Federal Register*
FY	fiscal year
g/hp-hr	grams per horsepower-hour
GHG	greenhouse gas
HB	House Bill
HGB	Houston-Galveston-Brazoria
hp	horsepower
IECC	International Energy Conservation Code
lb/MMBtu	pound per million British thermal units

lb/ton of clinker	pounds of NO_X per ton of cement clinker produced
LIRAP	Low Income Vehicle Repair Assistance, Retrofit, and Accelerated Vehicle Retirement Program
LNG	liquefied natural gas
MECT	Mass Emissions Cap and Trade
MW	megawatts
NAAQS	National Ambient Air Quality Standard(s)
NO_X	nitrogen oxides
NSR	New Source Review
NTIG	New Technology Implementation Grant
PM	particulate matter
$PM_{2.5}$	fine particulate matter
PSD	Prevention of Significant Deterioration
PUC	Public Utility Commission
SB	Senate Bill
SEER	seasonal energy efficient ratio
SIP	state implementation plan
SO_2	sulfur dioxide
STARS	State of Texas Air Reporting System
TAC	Texas Administrative Code
TACB	Texas Air Control Board
TCAA	Texas Clean Air Act
TCEQ	Texas Commission on Environmental Quality (commission)
TCFP	Texas Clean Fleet Program
TCSB	Texas Clean School Bus
TERP	Texas Emissions Reduction Plan
THSC	Texas Health and Safety Code

TNGVGP	Texas Natural Gas Vehicle Grant Program
TNRCC	Texas Natural Resource Conservation Commission
tpd	tons per day
tpy	tons per year
TUC	Texas Utilities Code
TxLED	Texas Low Emissions Diesel
$\mu g/m^3$	micrograms per cubic meter
VOC	volatile organic compounds

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CHAPTER 1: GENERAL

1.1 BACKGROUND

"The History of the Texas State Implementation Plan (SIP)," a comprehensive overview of the SIP revisions submitted to the United States Environmental Protection Agency (EPA) by the State of Texas, is available on the Introduction to the SIP Web page (http://www.tceq.texas.gov/airquality/sip/sipintro.html#History) on the Texas Commission on Environmental Quality's (TCEQ) Web site (http://www.tceq.texas.gov).

1.2 INTRODUCTION

This proposed SIP revision for the transport of $PM_{2.5}$ under the 2012 primary annual $PM_{2.5}$ NAAQS describes how the TCEQ will meet the requirements of §110(a)(2)(D)(i)(I) of the Federal Clean Air Act (FCAA). States are required to submit a SIP revision within three years of promulgation of new or revised NAAQS that contains adequate provisions that prohibit any source or other type of emissions activity within the state from emitting any NAAQS pollutants in amounts that will:

- contribute significantly to nonattainment of the NAAQS for areas in other states; or
- interfere with maintenance of the NAAQS in any other state.

On December 14, 2012, the EPA strengthened the NAAQS for $PM_{2.5}$. The revised primary annual standard, set at 12 micrograms per cubic meter (µg/m^3) replaced the previous 1997 standard of 15 µg/m^3. The EPA retained the 2006 24-hour $PM_{2.5}$ standard at 35 µg/m^3. Guidance on development and submission of infrastructure SIP revisions issued by the EPA on September 13, 2013 did not address §110(a)(2)(D)(i)(I), which specifically concerns interstate pollution transport affecting attainment and maintenance of the NAAQS. To date, the EPA has not published transport guidance for the 2012 $PM_{2.5}$ NAAQS.

Based on the control strategies already in place to reduce $PM_{2.5}$ precursor emissions and an analysis of $PM_{2.5}$ trends in Texas, this SIP revision demonstrates that Texas meets the transport requirements of FCAA §110(a)(2)(D)(i)(I).

1.3 HEALTH EFFECTS

In 2012, the EPA revised the primary annual $PM_{2.5}$ standard to 12.0 µg/m^3. To support the 2012 annual primary $PM_{2.5}$ standard, the EPA provided information indicating that health effects can occur at levels lower than the previous standard. Fine particles and precursor pollutants are emitted by a wide range of sources, including power plants, cars, trucks, industrial sources, and other burning combustion-related activities. The EPA has noted the following health effects associated with exposure to elevated levels of $PM_{2.5}$: respiratory problems such as shortness of breath, coughing, and wheezing; asthma aggravation; increased blood pressure and irregular heartbeat; decreased lung function; and premature death in people with heart or lung disease. Children, the elderly, and those with heart disease, or respiratory disease are at higher risk. Adverse short- and long-term effects are not expected to occur if the general public, including sensitive subpopulations, are exposed to $PM_{2.5}$ at levels below the respective NAAQS.

1.4 PUBLIC HEARING AND COMMENT INFORMATION

The TCEQ will hold a public hearing for this proposed SIP revision at the following time and location:

Table 1-1: Public Hearing Information

City	Date	Time	Location
Austin, TX	June 16, 2015	2:00 p.m.	Texas Commission on Environmental Quality, 12100 Park 35 Circle, Building E, Room 201S

Written comments will be accepted via mail, fax, or through the eComments (http://www1.tceq.texas.gov/rules/ecomments/index.cfm) system. All comments should reference the "Infrastructure and Transport SIP for the 2012 $PM_{2.5}$ NAAQS" and Project Number 2014-029-SIP-NR. Comments may be submitted to Mary Ann Cook, MC 206, State Implementation Plan Team, Office of Air, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087 or faxed to (512) 239-6188. Electronic comments may be submitted through the eComments system. File size restrictions may apply to comments being submitted via the eComments system. Comments must be received by June 22, 2015.

An electronic version of this proposed SIP revision and appendices can be found at the TCEQ's SIP Hot Topics Web page (http://www.tceq.texas.gov/airquality/sip/Hottop.html). Additional information can be found on the TCEQ's Air Pollution from Particulate Matter Web page (https://www.tceq.texas.gov/airquality/sip/criteria-pollutants/sip-pm/#latest).

1.5 SOCIAL AND ECONOMIC CONSIDERATIONS

Because rulemaking is not a part of this SIP revision, there are no changes that would have an impact on society or the economy.

1.6 FISCAL AND MANPOWER RESOURCES

The TCEQ has determined that its fiscal and manpower resources are adequate and will not be adversely affected through the implementation of this plan.

1.7 COORDINATION WITH LOCAL AGENCIES

The TCEQ has determined that there will be no assignment to local agencies. However, pre-existing assignments to local agencies regarding various enforcement activities remain in effect and could be used if enforcement activities are delegated to the TCEQ from the EPA.

1.8 ORGANIZATIONS RESPONSIBLE FOR DEVELOPMENT, IMPLEMENTATION, AND ENFORCEMENT

The TCEQ is the agency delegated authority by the Texas Legislature regarding the protection of air quality in the State of Texas. Other local government entities have limited authority regarding air quality matters in the State of Texas.

1.9 DATA AVAILABILITY

The TCEQ affirms that it will retain all data used in the preparation of this SIP revision. All supporting documents and data are publicly available via the TCEQ State Implementation Plan Web page (http://www.tceq.texas.gov/airquality/sip/) or are available from the TCEQ upon request.

CHAPTER 2: REQUIRED CONTROL STRATEGY ELEMENTS

2.1 BACKGROUND

Texas has submitted actual monitoring data showing attainment for the 11 counties (Bexar, Bowie, Dallas, Ellis, El Paso, Harris, Hidalgo, Harrison, Nueces, Tarrant, and Travis) with monitors for fine particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$). All areas in Texas have been designated attainment/unclassifiable for the 2012 primary annual $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS). Section 2.2.1.2: *Monitoring Sites* shows 2013 $PM_{2.5}$ design values for Texas and surrounding states.

Although there are no $PM_{2.5}$ nonattainment areas in the state, Texas already has numerous control measures in place to reduce emissions from $PM_{2.5}$ and its precursors. This chapter includes a summary of particulate matter (PM), sulfur dioxide (SO_2), and nitrogen oxides (NO_X) emissions reductions programs in the state. These measures have resulted in significant decreases in $PM_{2.5}$ design values from 2002 to 2013, with much of the decreases occurring from 2007 to 2013. With implementation of the 2012 $PM_{2.5}$ standard, decreases in design values are expected to continue.

Texas is included under the Cross-State Air Pollution Rule (CSAPR) for the 2006 24-hour $PM_{2.5}$ and 1997 annual $PM_{2.5}$ NAAQS and was previously included under the Clean Air Interstate Rule (CAIR) for the 1997 annual $PM_{2.5}$ NAAQS. In addition to the annual NO_X reductions from the CAIR program, in 1999 the state implemented a strategy in the eastern part of Texas to reduce NO_X emissions from electric generating units (EGU). These EGU strategies, along with other PM, NO_X, and SO_2 reducing programs fulfill the state's obligation to address transport for the 2012 $PM_{2.5}$ NAAQS.

2.2 CONTROL STRATEGY OVERVIEW

Federal Clean Air Act (FCAA), §110(a)(2)(D)(i)(I) requires states to submit a state implementation plan (SIP) revision that contains adequate provisions to prohibit any source or other type of emissions activity within the state from emitting any air pollutants in amounts that will contribute significantly to nonattainment of the NAAQS for areas in other states or interfere with maintenance of the NAAQS in any other state. The following sections evaluate annual $PM_{2.5}$ design value trends for areas in Texas and in surrounding states and outline the control measures implemented in Texas to achieve emission reductions to demonstrate that emissions from Texas do not contribute significantly to nonattainment or interfere with maintenance of the 2012 $PM_{2.5}$ NAAQS in another state.

2.2.1 Significant Contribution to Nonattainment and Interference with Maintenance Elements

2.2.1.1 Technical Analysis

$PM_{2.5}$ is composed of acids, organic chemicals, metals, dust, salts, and soil. $PM_{2.5}$ is emitted both directly and formed through secondary chemical reactions of precursor pollutants such as SO_2, NO_X, and volatile organic compounds (VOC). Direct sources of $PM_{2.5}$ include vehicles, unpaved roads, smokestacks, and fires while sources of $PM_{2.5}$ precursor pollutants include stationary sources such as power plants and industrial processes and mobile sources such as gasoline and diesel engines. $PM_{2.5}$ can also be transported for long distances; Texas, for example, observes $PM_{2.5}$ from fires originating in Mexico and dust blown in from as far as Africa.

The United States Environmental Protection Agency (EPA) revised the annual $PM_{2.5}$ NAAQS to 12.0 micrograms per cubic meter ($\mu g/m^3$) in 2012 and made final designations for the annual $PM_{2.5}$ NAAQS on December 18, 2014. The EPA calculates annual $PM_{2.5}$ design values by first

averaging the quarterly $PM_{2.5}$ values to get an annual average and then averaging the annual average $PM_{2.5}$ values over three years to get a design value. The EPA has designated 14 areas in six states as nonattainment of the 2012 annual $PM_{2.5}$ NAAQS (EPA, 2014a).

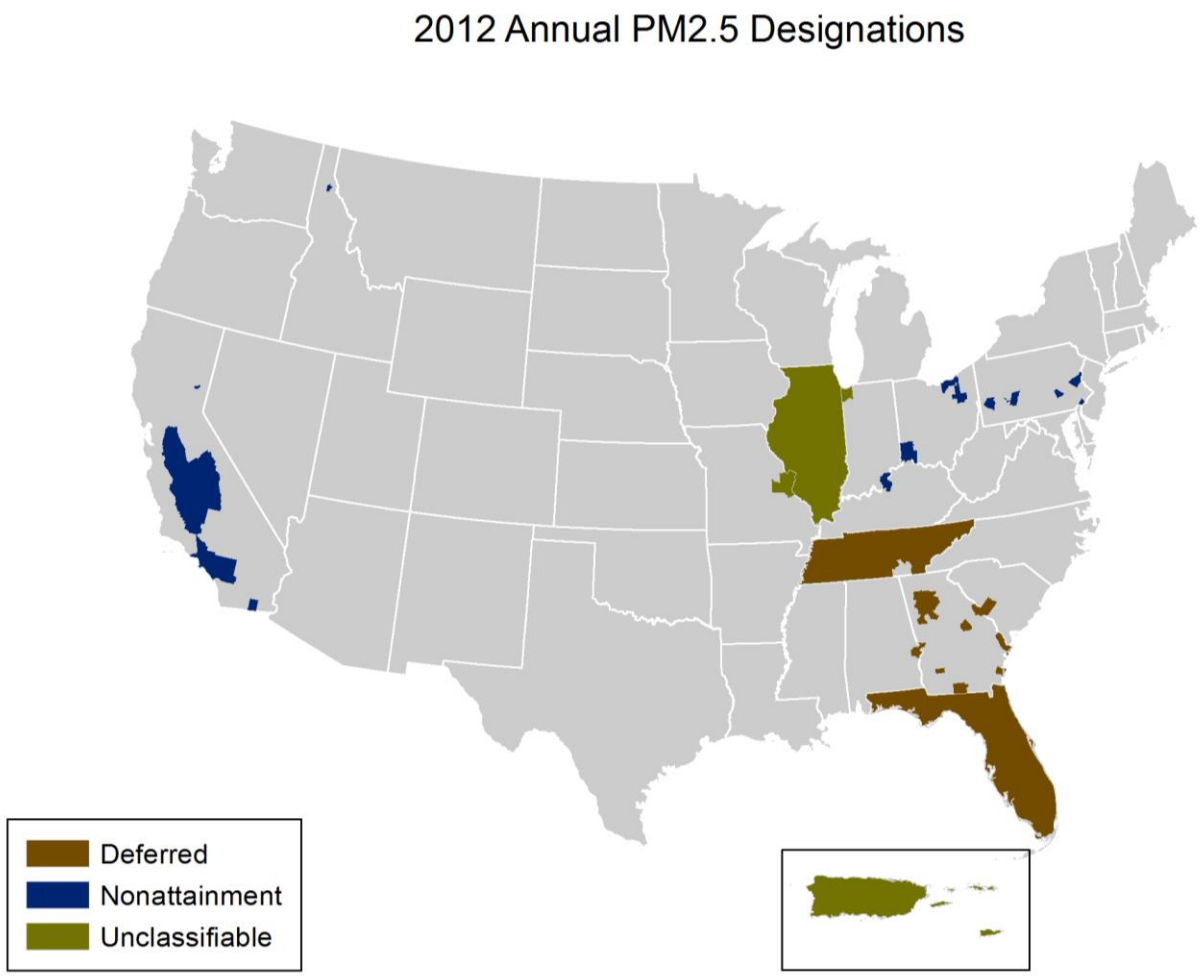


Figure 2-1: Areas Designated by the EPA as Nonattainment of the Annual $PM_{2.5}$ NAAQS (EPA, 2014a)

Figure 2-1: *Areas Designated by the EPA as Nonattainment of the Annual $PM_{2.5}$ NAAQS (EPA 2014a)* shows a map of the areas that the EPA has designated as nonattainment. California has the most counties (or partial counties) in nonattainment, which are shown in blue on the map, followed by Ohio, Pennsylvania, Kentucky, Indiana, and finally Idaho. The EPA designated three areas as unclassifiable, as shown in green on the map, due to quality assurance/quality control issues which resulted in incomplete data for the relevant period from 2011-2013. These areas included the entire state of Illinois, including parts of Indiana and Missouri that border Illinois; Puerto Rico; and the U.S. Virgin Islands. Also, as a result of data validity issues in several states, the EPA is using additional time available under FCAA, §107(d)(1)(B), to defer designations for parts of Georgia, South Carolina, Alabama, Tennessee, and the entire state of Florida, as shown in brown on the map. The EPA is awaiting additional air quality monitoring data to designate these areas. No areas within EPA Region 6, the region to which Texas and its surrounding states belong, are designated nonattainment of the annual $PM_{2.5}$ NAAQS.

To determine Texas' impact on other area's $PM_{2.5}$ concentrations, the technical analysis considers the following factors:

- an evaluation of the most recent annual $PM_{2.5}$ design values to determine which areas near Texas violate, or are close to violating the 2012 annual $PM_{2.5}$ NAAQS;
- an analysis of the $PM_{2.5}$ annual design value trends in Texas to determine if the $PM_{2.5}$ concentrations in Texas are increasing or decreasing; and
- an investigation of $PM_{2.5}$ annual design value trends in other states to determine whether $PM_{2.5}$ concentrations in those areas are increasing or decreasing.

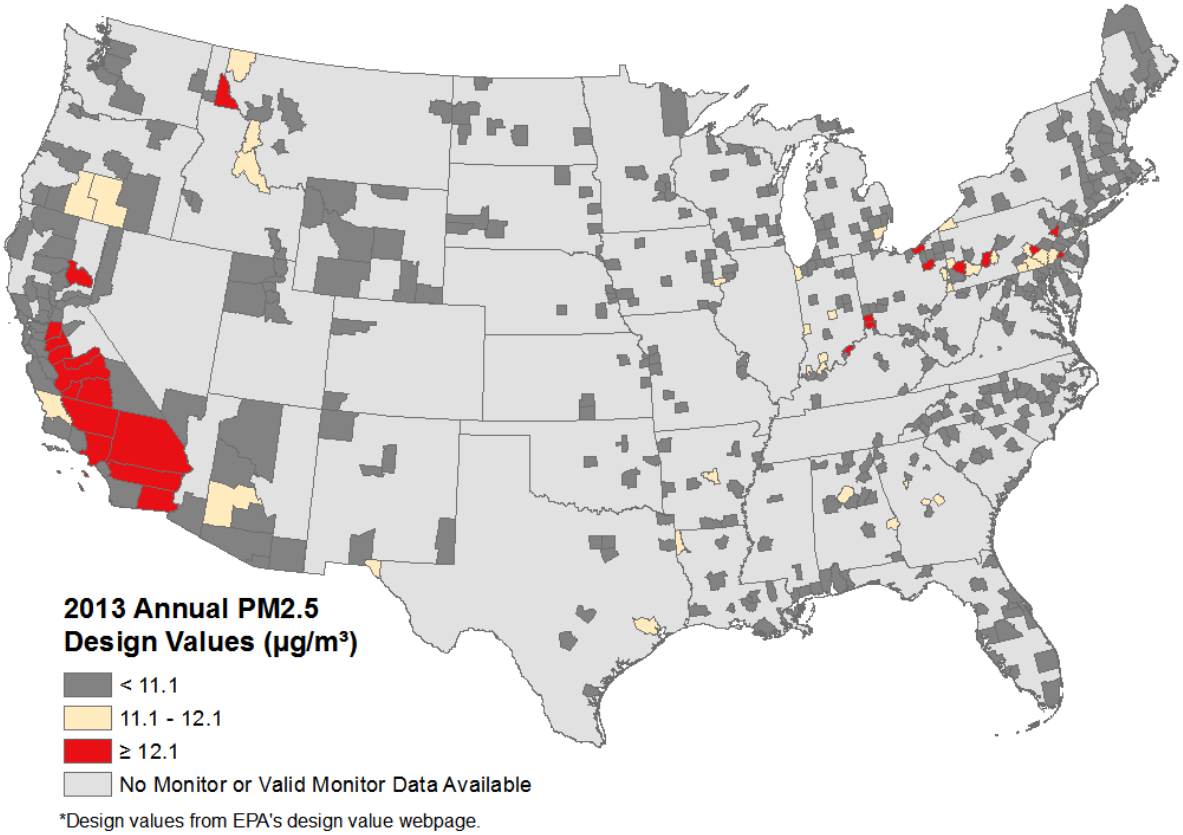


Figure 2-2: 2013 Annual $PM_{2.5}$ Design Values by County

Figure 2-2: *2013 Annual $PM_{2.5}$ Design Values by County* shows a map of the 2013 annual $PM_{2.5}$ design values by county. Only counties with a valid annual $PM_{2.5}$ design value in 2013 are filled in on the map. Counties colored in red represent counties with a 2013 annual design value greater than 12.1 µg/m³, counties colored in light yellow represent counties with a 2013 annual $PM_{2.5}$ design value that is equal to or above 11.1 µg/m³, and counties colored in gray are counties with a 2013 annual $PM_{2.5}$ design value less than 11.1 µg/m³. The map only shows the level of the annual $PM_{2.5}$ design value within a county and does not indicate whether that county is designated as nonattainment. The design values only exclude exceptional events concurred by the EPA as of August 8, 2014.

Out of the 50 states in the United States (U.S.), only five have valid 2013 design values above the annual $PM_{2.5}$ NAAQS; California, Indiana, Ohio, Pennsylvania, and Idaho. Of those five states,

only 24 counties were above the annual $PM_{2.5}$ NAAQS in 2013, and over half of those counties are located within the state of California. No county in Texas, or in EPA Region 6, is above the annual $PM_{2.5}$ NAAQS. There are 40 U.S. counties, colored in light yellow on the map, that are within 1.0 µg/m³ of the annual $PM_{2.5}$ NAAQS. Four of those counties are located within EPA Region 6, two in Texas (Harris County and El Paso County), one in Louisiana (Caddo Parish), and one in Arkansas (Pulaski County).

Although no nonattainment areas are within close proximity to Texas, an examination of annual $PM_{2.5}$ design value trends in Texas can be useful to determine whether the state is interfering with maintenance of the annual $PM_{2.5}$ NAAQS in nearby areas. Trends in annual $PM_{2.5}$ design values by Texas County for the past 10 years are displayed in Figure 2-3: *Annual PM2.5 Design Value Trends by County in Texas*.

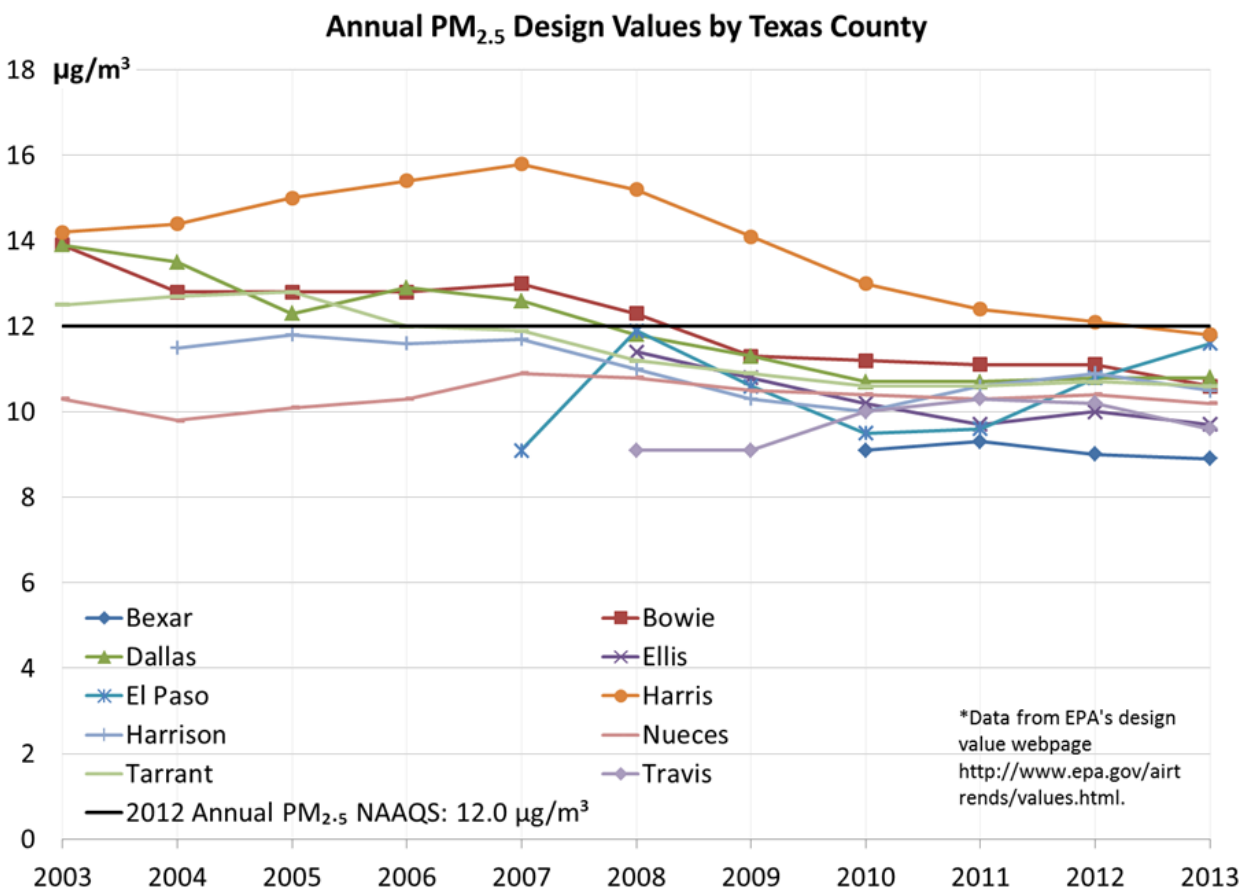


Figure 2-3: Annual $PM_{2.5}$ Design Value Trends by County in Texas

Figure 2-3 shows that, for most counties in Texas, the annual $PM_{2.5}$ design values have been decreasing. Since 2008, all counties with the exception of Harris County were below the 2012 annual $PM_{2.5}$ NAAQS of 12.0 µg/m³. Only two counties in Texas have annual $PM_{2.5}$ design values above 11.0 µg/m³, Harris County and El Paso County. Harris County has had a steady decrease in design values since 2007; however, El Paso County has shown an increase from 2011 through 2013.

Since design values are averaged over three years, it is useful to examine the annual averages to get a closer look at the trends over the years. Annual average $PM_{2.5}$ was investigated by monitor for Harris County and El Paso County, the two Texas counties with $PM_{2.5}$ design values above 11.0 µg/m³ in 2013. Figure 2-4: *Annual Average PM2.5 Trends in Harris County* shows decreases in annual average $PM_{2.5}$ at all monitors located in Harris County. From 2003 through 2013 annual average $PM_{2.5}$ decreased 22% at Aldine, 25% at Baytown, and 23% at Clinton, the monitor with the highest $PM_{2.5}$ concentrations.

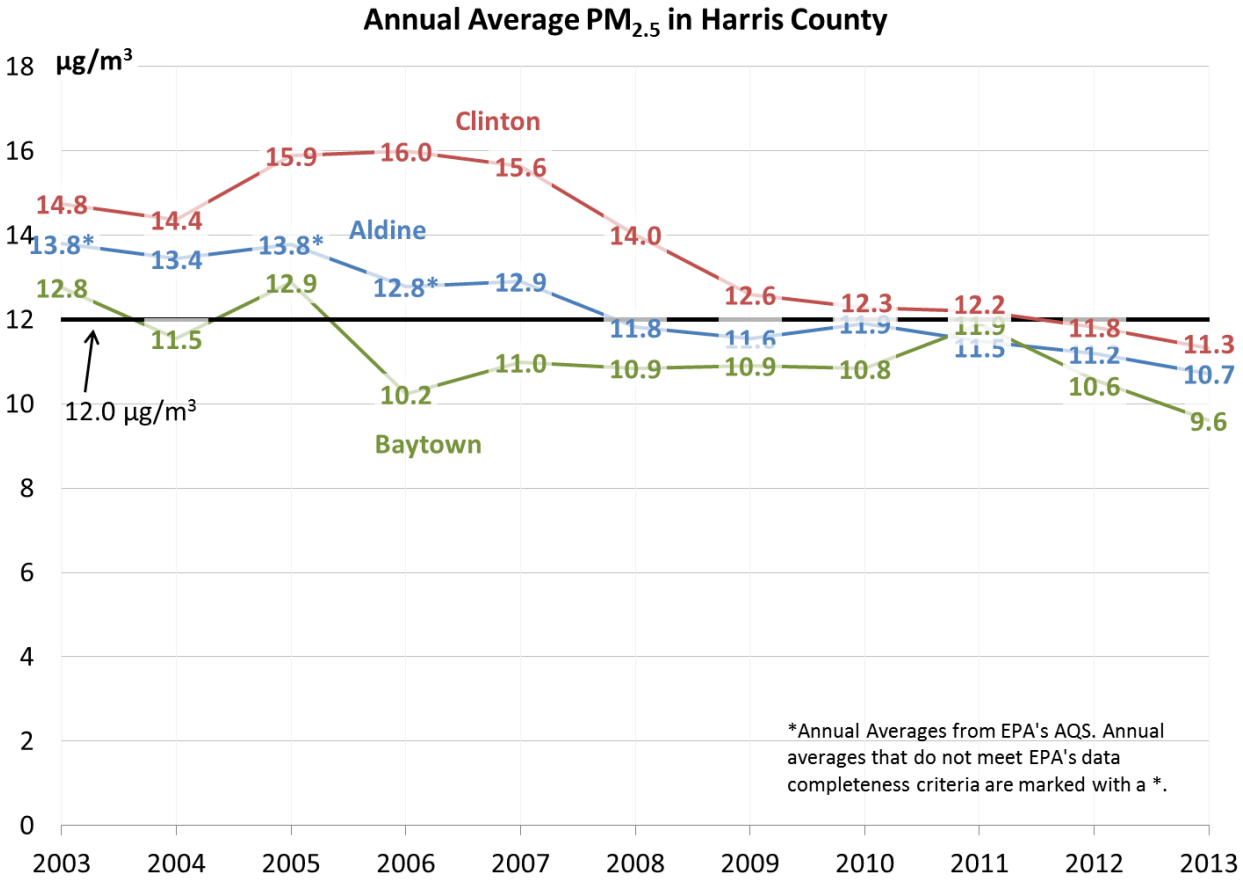


Figure 2-4: Annual Average $PM_{2.5}$ Trends in Harris County

Annual average $PM_{2.5}$ trends in El Paso County are displayed in *Figure 2-5: Annual Average PM2.5 Trends in El Paso County*. Note that there were no valid annual averages in El Paso County prior to 2005. El Paso County was the only county in Texas to show a slight increase in annual $PM_{2.5}$ design values in recent years. Looking at the annual averages, it is apparent that that increase is due to high levels of annual average $PM_{2.5}$ that occurred in 2011 and in 2012. Those high levels are believed to be from exceptional events. The Texas Commission on Environmental Quality (TCEQ) submitted an exceptional event demonstration for El Paso to the EPA on December 12, 2013. The demonstration documents ten days between 2010 through 2012 where $PM_{2.5}$ concentration levels were high due to high wind regional dust blowing events. The high levels of annual average $PM_{2.5}$ dropped in 2013. Overall, the trends in annual average concentrations at both monitors in El Paso have been decreasing with a 10% drop in annual average $PM_{2.5}$ at UTEP from 2005 through 2013 and a 13% drop in annual average $PM_{2.5}$ at Chamizal from 2006 through 2013.

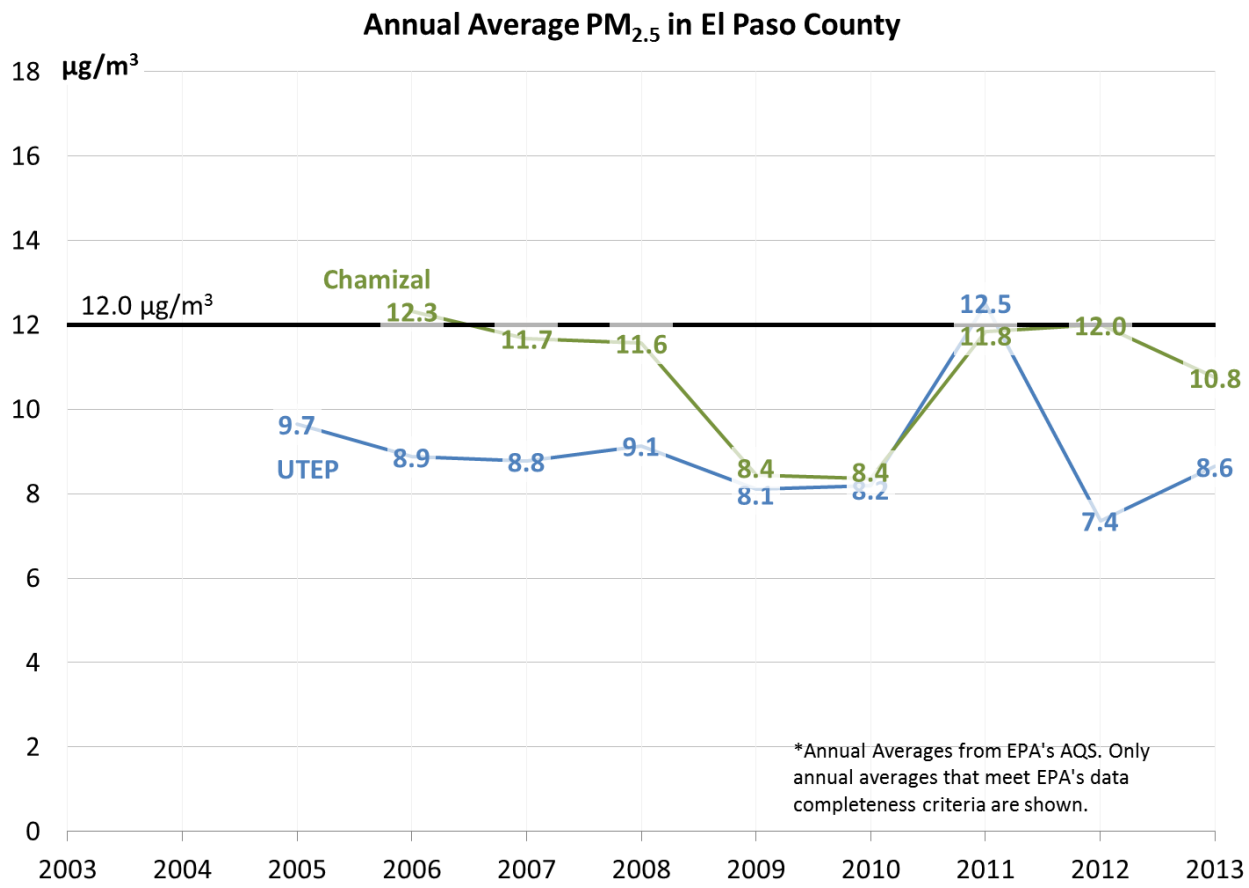


Figure 2-5: Annual Average $PM_{2.5}$ Trends in El Paso County

Trends in $PM_{2.5}$ concentrations in Texas have shown decreases across the state. These decreases mean that it is unlikely that emissions from Texas significantly impact the maintenance of the annual $PM_{2.5}$ NAAQS in other states currently attaining the standard.

Trends in annual $PM_{2.5}$ design values in the areas that the EPA designated as nonattainment for the 2012 annual NAAQS are displayed in Figure 2-6: *Annual PM2.5 Design Value Trends in Areas Designated as Nonattainment by the EPA*. The percent change in annual $PM_{2.5}$ design values from 2003 through 2013 are listed in Table 2-1: *Percent Change in Annual PM2.5 Design Values*. Most areas have experienced large decreases in $PM_{2.5}$ concentrations; however, three areas saw an increase in $PM_{2.5}$, West Silver Valley, ID, Imperial County, CA, and Plumas County, CA.

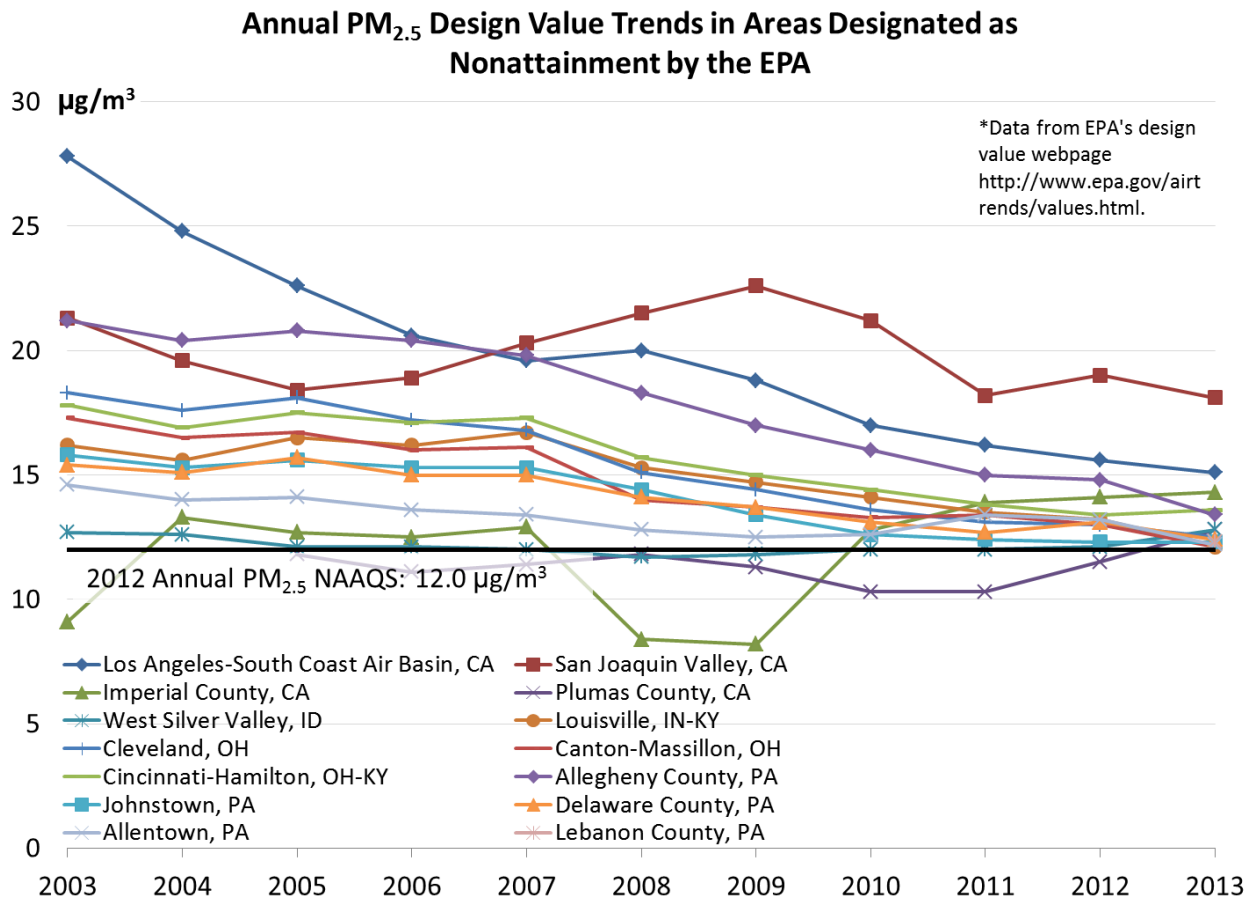


Figure 2-6: Annual $PM_{2.5}$ Design Value Trends in Areas Designated as Nonattainment by the EPA

Table 2-1: Percent Change in Annual $PM_{2.5}$ Design Values

EPA Designated Nonattainment Area	Percent Change 2003-2013
Los Angeles-South Coast Air Basin, CA	-46
Allegheny County, PA	-37
Cleveland, OH	-32
Canton-Massillon, OH	-30
Louisville, IN-KY	-25
Cincinnati-Hamilton, OH-KY	-24
Johnstown, PA	-22
Delaware County, PA	-19
Allentown, PA	-16

EPA Designated Nonattainment Area	Percent Change 2003-2013
San Joaquin Valley, CA	-15
West Silver Valley, ID	1
Imperial County, CA	57
Plumas County, CA*	8
Lebanon County, PA**	--

*Indicates that the area did not have data in 2003; therefore, percent change was calculated from the first year of data (2005) through 2013.
**Indicates that the area only had data in 2013; therefore, no percent change could be calculated.

Another way to view trends in $PM_{2.5}$ is to look at what areas the EPA projects to be nonattainment in the year 2020. Those areas are displayed in the map in Figure 2-7: *Annual PM2.5 Design Values Projected for 2020 (EPA, 2014b)*. Using 2007 emissions and accounting only for "on the books" reductions from federal and state rules, the EPA projects only seven counties within the state of California to have annual $PM_{2.5}$ design values above 12.0 $\mu g/m^3$ in 2020. No state within EPA Region 6, or adjacent to EPA Region 6 is projected to be above the 2012 $PM_{2.5}$ annual NAAQS. The EPA's projections in conjunction with the downward trend in $PM_{2.5}$ levels in Texas make it clear that Texas is not likely to affect other state's attainment or maintenance status of the annual $PM_{2.5}$ NAAQS.

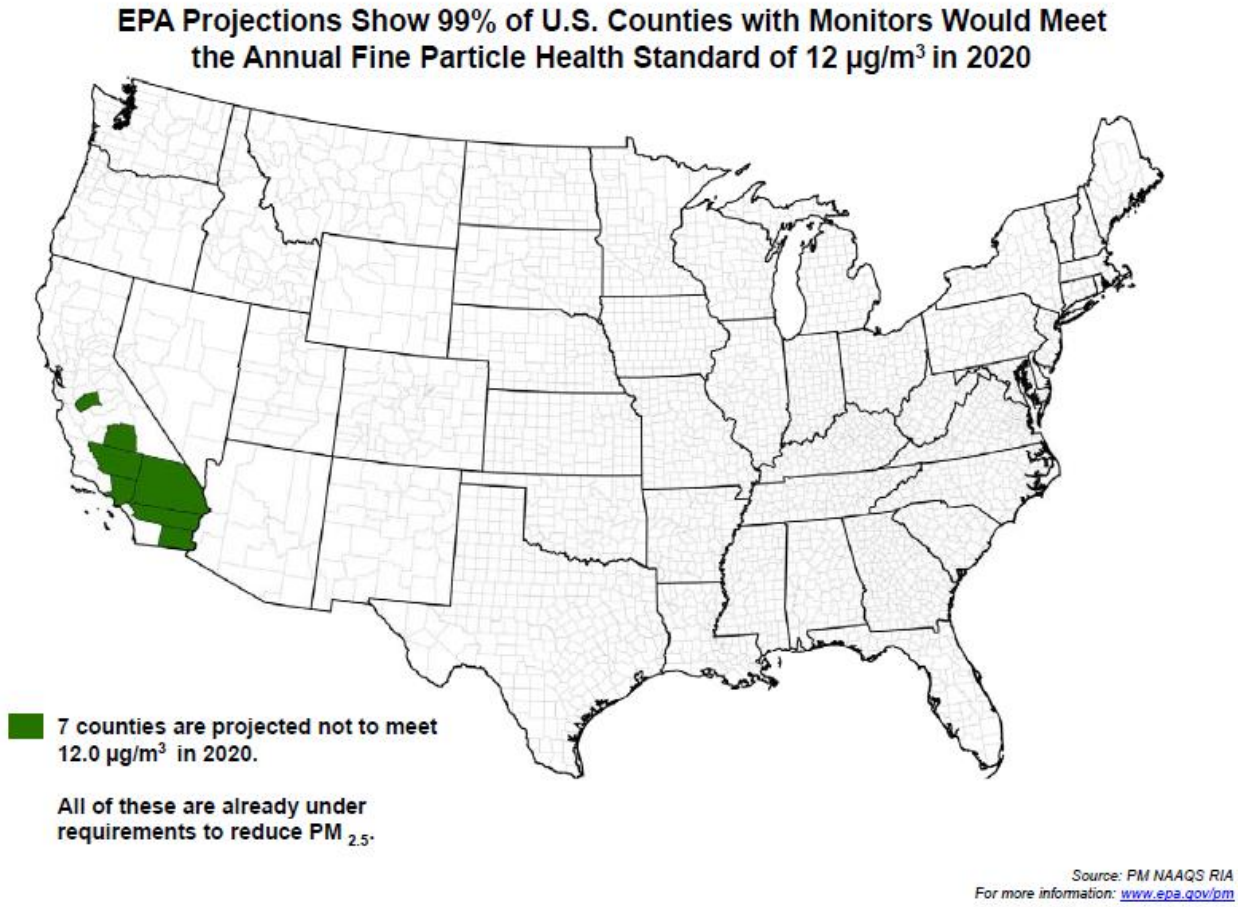


Figure 2-7: Annual $PM_{2.5}$ Design Values Projected for 2020 (EPA, 2014b)

2.2.1.2 Monitoring Sites

In 2013, there were 75 $PM_{2.5}$ monitors located within EPA Region 6. The location of monitors with valid 2013 annual $PM_{2.5}$ design values were displayed in the map in Figure 2-2: *2013 Annual $PM_{2.5}$ Design Values by County*. A complete list of monitors, including those without valid design values is shown in Table 2-2: *Monitor Sites and Annual $PM_{2.5}$ Design Values in EPA Region 6*. Note that these are monitors that have reported data to the EPA's Air Quality System. Texas has the most monitors, 22, in Region 6. Louisiana and Arkansas each have 16 monitors, Oklahoma has 14 monitors, and New Mexico has seven monitors.

Table 2-2: Monitor Sites and Annual $PM_{2.5}$ Design Values in EPA Region 6

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value (µg/m³)
Arkansas	Arkansas	050010011	Stuttgart	10.1
Arkansas	Ashley	050030005	Crossett	10.1
Arkansas	Crittenden	050350005	Marion	10.6
Arkansas	Faulkner	050450002	Conway	
Arkansas	Garland	050510003	Hot Springs	10.5
Arkansas	Jackson	050670001	Newport	9.6
Arkansas	Phillips	051070001	Helena	

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value ($\mu g/m^3$)
Arkansas	Polk	051130002	Mena	10.5
Arkansas	Pope	051150003	Russellville	
Arkansas	Pulaski	051190007	Parr	11.2
Arkansas	Pulaski	051191004	Adams Field	11.1
Arkansas	Pulaski	051191008	Doyle Springs Road	11.7
Arkansas	Sebastian	051310008	Ft. Smith	
Arkansas	Union	051390006	El Dorado	10.7
Arkansas	Washington	051430005	Springdale	10.2
Arkansas	White	051450001	Searcy	
Louisiana	Caddo	220170008	Shreveport / Calumet	11.6
Louisiana	Calcasieu	220190009	Vinton	8.1
Louisiana	Calcasieu	220190010	McNesse	8.4
Louisiana	East Baton Rouge	220330009	Capitol	9.4
Louisiana	Iberville	220470005	Geismar	9.4
Louisiana	Iberville	220470009	Bayou Plaquemine	8.5
Louisiana	Jefferson	220511001	Kenner	8.2
Louisiana	Jefferson	220512001	Marrero	8.7
Louisiana	Lafayette	220550006	Lafayette / State Police Troop	
Louisiana	Lafayette	220550007	Lafayette / USGS	8.5
Louisiana	Ouachita	220730004	Monroe / Airport	8.9
Louisiana	Rapides	220790002	Alexandria	8.1
Louisiana	St. Bernard	220870007	Chalmette Vista	9.7
Louisiana	Tangipahoa	221050001	Hammond	8.5
Louisiana	Terrebonne	221090001	Houma	7.8
Louisiana	West Baton Rouge	221210001	Port Allen	9.9
New Mexico	Bernalillo	350010023	Del Norte High School	6.7
New Mexico	Bernalillo	350010024	South East Heights	6.7
New Mexico	Bernalillo	350010029	South Valley	
New Mexico	Dona Ana	350130025	Las Cruces District Office of NM Environment Dept.	6.3
New Mexico	Lea	350250008	Hobbs-Jefferson	8.4
New Mexico	San Juan	350450019	Farmington Environment Department Office	4.7
New Mexico	Santa Fe	350490020		4.9
Oklahoma	Adair	400019009	Stilwell	
Oklahoma	Caddo	400159008	Anadarko $PM_{2.5}$	
Oklahoma	Cleveland	400270049	Moore Water Tower	

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value ($\mu g/m^3$)
Oklahoma	Comanche	400310651	Lawton North	
Oklahoma	Kay	400710604	Ponca City Salvation Army	
Oklahoma	Kay	400719030	Kanza Travel Plaza	
Oklahoma	Love	400850300	Weather Station – Burnyeyville Mesonet Site	
Oklahoma	Mayes	400970186	Pryor	
Oklahoma	Oklahoma	401090035	Central Fire Station	9.7
Oklahoma	Oklahoma	401091037	OKC North	9.5
Oklahoma	Pittsburg	401210415	McAlester Municipal Airport	10.3
Oklahoma	Sequoyah	401359021		10.5
Oklahoma	Tulsa	401430174	Tulsa South	
Oklahoma	Tulsa	401431127	North Tulsa - Fire Station #24	10.1
Texas	Bexar	480290032	San Antonio Northwest	8.9
Texas	Bexar	480290059	Calaveras Lake	8.6
Texas	Bowie	480370004	Texarkana	10.6
Texas	Cameron	480612004	Isla Blanca Park	
Texas	Dallas	481130050	Convention Center	10.8
Texas	Dallas	481130069	Dallas Hinton	10.0
Texas	Ellis	481390016	Midlothian OFW	9.7
Texas	El Paso	481410037	El Paso UTEP	9.5
Texas	El Paso	481410044	El Paso Chamizal	11.6
Texas	Galveston	481671034	Galveston 99th Street	
Texas	Harris	482010024	Houston Aldine	11.1
Texas	Harris	482010058	Baytown	10.7
Texas	Harris	482011035	Clinton	11.8
Texas	Harris	482011039	Houston Deer Park #2	
Texas	Harrison	482030002	Karnack	10.5
Texas	Hidalgo	482150043	Mission	
Texas	Nueces	483550032	Corpus Christi Huisache	10.2
Texas	Nueces	483550034	Dona Park	9.4
Texas	Tarrant	484391002	Fort Worth Northwest	10.5
Texas	Tarrant	484391006	Haws Athletic Center	10.6
Texas	Travis	484530020	Austin Audubon Society	7.8
Texas	Travis	484530021	Austin Webberville Rd	9.6

*A blank cell indicates that there is no valid 2013 annual $PM_{2.5}$ design value at that site.

2.2.2 Statewide Emissions Reductions

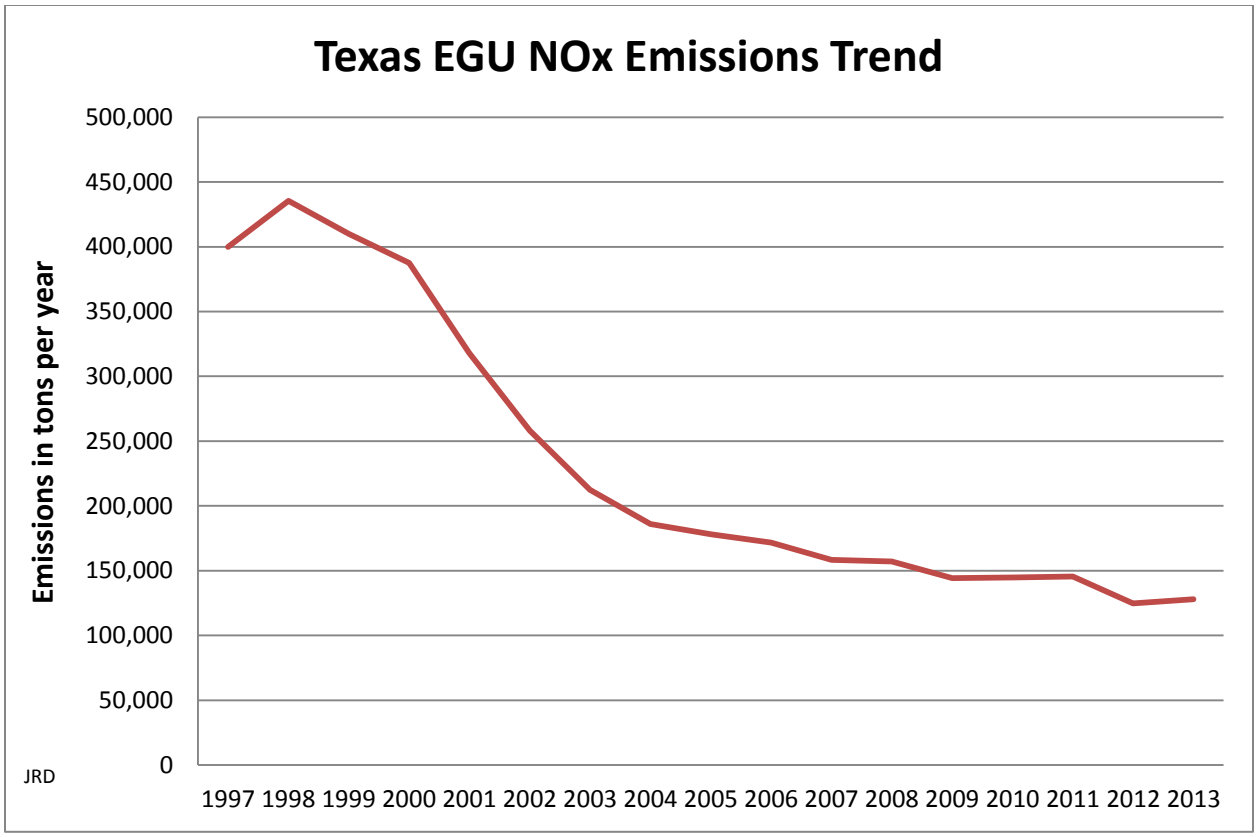
In the 2014 Five-Year Regional Haze SIP Revision (https://www.tceq.texas.gov/assets/public/implementation/air/sip/haze/13012SIP_ado.pdf#page=77), Section 4.7: *Statewide Emissions Data Comparison*, Texas analyzed changes in emissions of SO_2, NO_X, and PM from sources within the state and determined that all emissions levels are decreasing.

2.2.3 Emissions Reductions from EGUs

These strategies have resulted in significant NO_X and SO_2 emissions reductions from EGUs. Figure 2-8: *NO_X Emissions Trend for Texas EGUs from 1997 through 2013* shows the NO_X emission reductions from EGUs from 1997 through 2013 and Figure 2-9: *SO_2 Emissions Trend for Texas EGUs from 1997 through 2013* shows the SO_2 emission reductions from EGUs from 1997 through 2013. These rules are summarized in Section 2.2.2.2: *Electric Utility Generation in Ozone Nonattainment Areas*, Section 2.2.2.3: *Electric Utility Generation in East and Central Texas*, and Section 2.2.2.4: *SB 7, 76th Texas Legislature* of this proposed SIP revision.

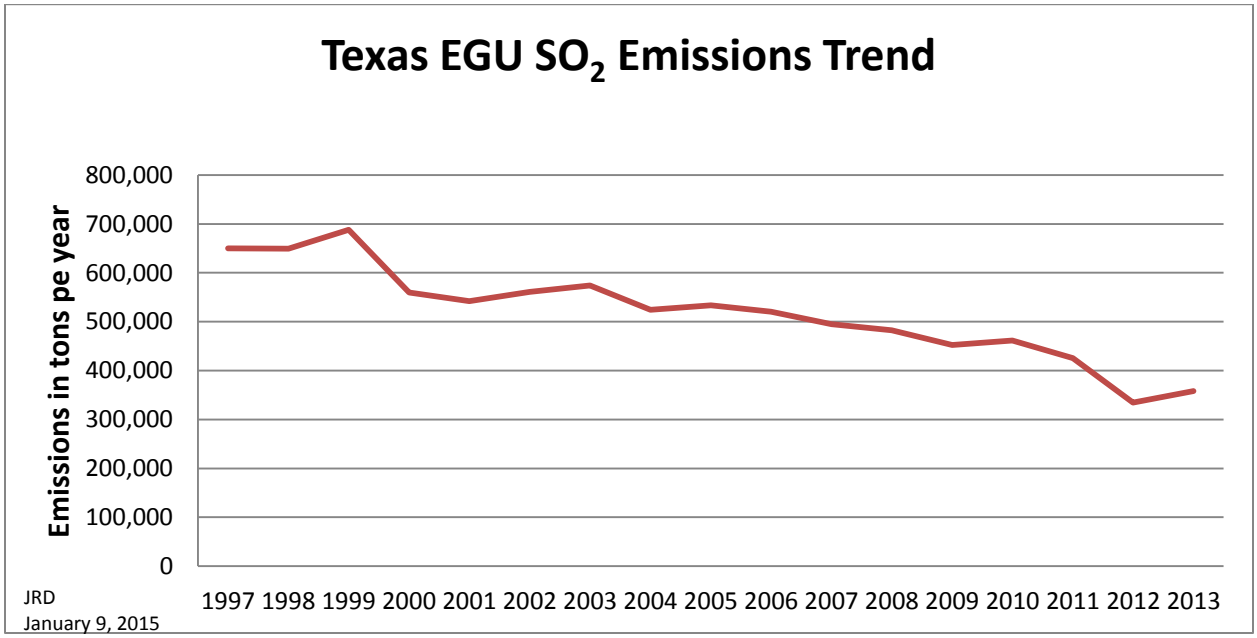
Texas was included in CAIR for the 1997 $PM_{2.5}$ NAAQS. In addition to the annual NO_X reductions from the CAIR program, in 1999 the state implemented a strategy in the eastern part of Texas to reduce NO_X emissions from EGUs. The control strategies specific to EGUs include:

- electric utility generation in ozone nonattainment areas;
- electric utility generation in east and central Texas; and
- Texas-specific legislation from the 1999 76th session in Senate Bill (SB) 7 that requires NO_X reductions through a regional cap and trade program.



Source: State of Texas Air Reporting System (STARS)

Figure 2-8: NO_X Emissions Trend for Texas EGUs from 1997 through 2013



Source: STARS

Figure 2-9: SO_2 Emissions Trend for Texas EGUs from 1997 through 2013

2.2.3.1 CAIR and CSAPR

In March 2005, the EPA issued CAIR to address EGU emissions that transport from one state to another.[8] The rule incorporated the use of three cap and trade programs to reduce SO_2 and NO_X: the ozone-season NO_X trading program, the annual NO_X trading program, and the annual SO_2 trading program.

Texas was not included in the ozone season NO_X program because Texas was not found to contribute to nonattainment or interfere with maintenance for the 1997 eight-hour ozone standard, but was included for the annual NO_X and SO_2 programs for the 1997 annual $PM_{2.5}$ NAAQS. As such, Texas was required to make necessary reductions in annual SO_2 and NO_X emissions from new and existing EGUs. CAIR consisted of two phases for implementing necessary NO_X and SO_2 reductions. Phase I addressed required reductions from 2009 through 2014. Phase II was intended to address reductions in 2015 and thereafter. In July 2006, the TCEQ adopted a SIP revision to address how the state would meet the emissions allowance allocation budgets for NO_X and SO_2 established by the EPA to meet the federal obligations under CAIR. The TCEQ adopted a second CAIR-related SIP revision in February 2010. This revision incorporated various federal rule revisions that the EPA had promulgated since the TCEQ's initial submittal. It also incorporated revisions to 30 Texas Administrative Code (TAC), Chapter 101 resulting from legislation during the 80th Texas Legislature. The TCEQ adopted a separate SIP revision in April 2008 addressing transport for the 1997 eight-hour ozone NAAQS.

A December 2008 court decision found flaws in CAIR, but kept CAIR requirements in place temporarily while directing the EPA to issue a replacement rule. In July 2011, the EPA finalized CSAPR to meet FCAA requirements and respond to the court's order to issue a replacement program. Texas was included in CSAPR for ozone season NO_X, annual NO_X, and annual SO_2 due to the EPA's determination that Texas significantly contributes to nonattainment or interferes with maintenance of the 1997 eight-hour ozone NAAQS and the 1997 $PM_{2.5}$ NAAQS in other states.

On December 30, 2011, the United States District Court of Appeals for the District of Columbia Circuit (D.C. Circuit) issued a stay of CSAPR, and on August 21, 2012 issued a decision to vacate the rule. However, on April 29, 2014, the U.S. Supreme Court overturned this decision and remanded CSAPR back to the D.C. Circuit for further consideration. The majority decision held that the EPA has authority under the FCAA to consider cost-effectiveness when allocating emission reduction obligations in upwind states to ensure downwind states attain the relevant NAAQS. Additionally, the majority held that the EPA is not obligated to provide states with an opportunity to revise SIPs prior to issuing federal implementation plans (FIPs). Then, on October 23, 2014, the D.C. Circuit Court ordered that the EPA's motion to lift the stay of CSAPR be granted while litigation continued. This was followed by a ministerial rule issued by the EPA on November 21, 2014 that revised the dates in the CSAPR rule text to coincide with the court-ordered schedule. Phase I was implemented on January 1, 2015 and Phase II is scheduled to begin in 2017.

2.2.3.2 Electric Utility Generation in Ozone Nonattainment Areas

The rules in 30 TAC Chapter 117, Subchapter C establish NO_X emission specifications for electric utility generation for the Beaumont Port-Arthur (BPA) 1997 eight-hour ozone maintenance area (Hardin, Jefferson, and Orange Counties); the Houston-Galveston-Brazoria (HGB) 1997 eight-

[8] CAIR only included emissions that impact attainment and maintenance of the 1997 eight-hour ozone and 1997 annual $PM_{2.5}$ NAAQS.

hour ozone nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties); and the Dallas-Fort Worth (DFW) 1997 eight-hour ozone nonattainment area (Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties) in Texas. These rules apply to each electric generating facility that generates electric energy for compensation. The rules also apply to facilities that are owned or operated by a municipality or Public Utility Commission (PUC) of Texas regulated utility or any of its successors, regardless of whether the successor is a municipality or is regulated by the PUC.

In the HGB 1997 eight-hour ozone nonattainment area, the owner or operator of each affected utility boiler, auxiliary steam boiler, or stationary gas turbine must demonstrate compliance with the NO_X emission specifications through a system cap and participation in the HGB area Mass Emissions Cap and Trade (MECT) Program. Affected sources were required to comply with the MECT Program rules beginning January 1, 2002 and comply with the system cap requirements by March 31, 2004. Additional information about the MECT Program is available in Section 2.2.3.1: *HGB Area MECT Program*.

In the DFW 1997 eight-hour ozone nonattainment area, each utility boiler that is part of a large system must meet a NO_X emission rate of 0.033 pound per million British thermal units (lb/MMBtu) heat input, and each utility boiler that is part of a small system must meet a NO_X emission rate of 0.06 lb/MMBtu heat input. Compliance with the NO_X emission rates may be demonstrated on a daily average basis, a system-wide heat input weighted average basis for utility boilers that are part of a large system, or through the use of emission credits. Affected sources were required to comply with the rules by March 1, 2009.

In the BPA 1997 eight-hour ozone maintenance area, each utility boiler must meet a NO_X emission rate of 0.10 lb/MMBtu heat input. Compliance with the NO_X emission rates must be demonstrated on a daily average, through the use of a system cap, or through the use of emission credits. Affected sources were required to comply with the rules by May 1, 2005.

2.2.3.3 Electric Utility Generation in East and Central Texas

The rules in 30 TAC Chapter 117, Subchapter E, Division 1 limit NO_X emissions from electric utility generation in Atascosa, Bastrop, Bexar, Brazos, Calhoun, Cherokee, Fannin, Fayette, Freestone, Goliad, Gregg, Grimes, Harrison, Henderson, Hood, Hunt, Lamar, Limestone, Marion, McLennan, Milam, Morris, Nueces, Parker, Red River, Robertson, Rusk, Titus, Travis, Victoria, and Wharton Counties. The rules apply to each electric utility power boiler and stationary gas turbine (including duct burners used in turbine exhaust ducts) that generate electric energy for compensation; is owned by an electric cooperative, independent power producer, municipality, river authority, or public utility; and was placed into service before December 31, 1995. Electric utility power boilers must meet a NO_X emission rate of 0.14 lb/MMBtu for gas-fired units and 0.165 lb/MMBtu for coal-fired units. Stationary gas turbines (including duct burners used in turbine exhaust ducts) must meet an annual average NO_X emission rate of 0.14 lb/MMBtu for units subject to Texas Utilities Code (TUC), §39.264 [except §39.264(i)] or 0.15 lb/MMBtu for units not subject to TUC, §39.264 and units designated in accordance with TUC, §39.264(i). Compliance with the NO_X emission rates is based on average heat input for a calendar year. Affected sources were required to comply with the rules by May 1, 2005.

2.2.3.4 SB 7, 76th Texas Legislature

SB 7 from the 1999 76th Texas Legislative Session, requires a cap and trade program for previously grandfathered or unpermitted, EGUs and other electric generating facilities that choose to participate in the cap and trade program. SB 7 requires a 50% reduction in NO_X

emissions and a 25% reduction in SO_2 emissions from the 1997 emission levels. The NO_X allowances were determined using a NO_X rate of 0.14 lb/MMBtu for grandfathered facilities in the East Texas region and a NO_X rate of 0.195 lb/MMBtu for the grandfathered facilities in the West Texas and El Paso regions. The SO_2 allowances were determined using an SO_2 rate of 1.38 lb/MMBtu for grandfathered facilities in the East Texas region. There are no coal-fired electric generating facilities located in the West Texas and El Paso regions that are subject to the Emissions Banking and Trading Allowances Program. The SB 7 requirements were implemented through rules in 30 TAC Chapter 101, Subchapter H, Division 2 published in the Texas Register on January 7, 2000. The initial control period for this program began on May 1, 2003.

2.2.4 Emission Reductions from Other Sources

Texas has implemented numerous control measures to reduce PM precursor emissions from a variety of sources. Section 2.2.3: *Emissions Reductions from Other Sources* details some of the controls for major stationary sources and regional controls implemented as part of the state's strategy.

2.2.4.1 HGB Area MECT Program

The MECT Program rules in 30 TAC Chapter 101, Subchapter H, Division 3 established a mandatory annual NO_X emission cap on sites in the HGB 1997 eight-hour ozone nonattainment area that are either a major source of NO_X with facilities subject to the NO_X emissions specifications in 30 TAC §117.310 or §117.1210, or have an uncontrolled design capacity to emit at least 10 tons per year (tpy) of NO_X from facilities subject to §117.2010. Affected facilities include: utility boilers, auxiliary steam boilers, or stationary gas turbines; industrial, commercial, or institutional boilers and process heaters; stationary gas turbines; stationary internal combustion engines; fluid catalytic cracking units (including carbon monoxide boilers, carbon monoxide furnaces, and catalyst regenerator vents); boilers and industrial furnaces that were regulated as existing facilities by the EPA under 40 Code of Federal Regulations Part 266, Subpart H (as in effect on June 9, 1993); duct burners used in turbine exhaust ducts; pulping liquor recovery furnaces; lime kilns; lightweight aggregate kilns; heat treating furnaces and reheat furnaces; magnesium chloride fluidized bed dryers; and incinerators.

The MECT Program cap is enforced by the allocation, trading, and banking of allowances. An allowance is the equivalent of one ton of NO_X emissions. The MECT Program cap was implemented on January 1, 2002, at historical emission levels, with mandatory NO_X reductions increasing over time until achieving the final cap on April 1, 2007. Affected facilities that do not meet the criteria for receiving an allocation of allowances must use allowances allocated to facilities already participating in the program to cover annual NO_X emissions.

Table 2-3: *Allocated NO_X Allowances and Emissions under the MECT Program* and Figure 2-10: *Allocated NO_X Allowances versus Emissions under MECT* show a comparison of allocated NO_X allowances and actual NO_X emissions for controls periods 2002 through 2012. As Figure 2-10 shows, MECT allocations and NO_X emissions have decreased significantly.

Table 2-3: Allocated NO_X Allowances and Emissions under the MECT Program

MECT Control Period	Allocated NO_X Allowances	NO_X Emissions
2002	231,104	107,629
2003	209,339	90,796
2004	139,327	74,363

MECT Control Period	Allocated NO_X Allowances	NO_X Emissions
2005	86,169	61,171
2006	63,567	51,921
2007	49,711	39,003
2008	44,845	32,632
2009	43,829	32,010
2010	43,541	30,605
2011	42,002	32,054
2012	40,963	29,528

Source: TCEQ's Mass Emissions Cap and Trade Web page (www.tceq.texas.gov/airquality/banking/mass_ect_prog.html)

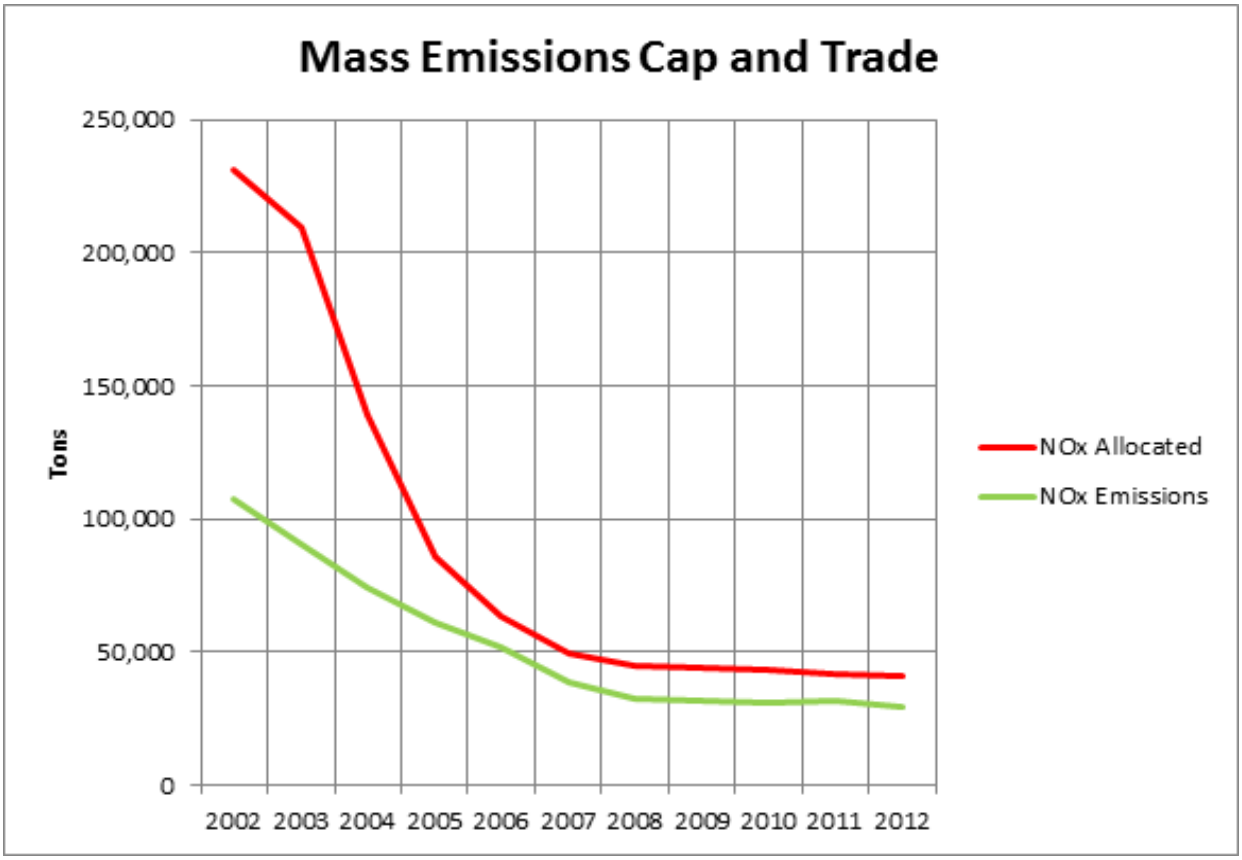


Figure 2-10: Allocated NO_X Allowances versus Emissions under MECT

2.2.4.2 Cement Kilns

The rules in 30 TAC Chapter 117, Subchapter E, Division 1 limit NO_X emissions from cement kilns in Bexar, Comal, Ellis, Hays, and McLennan Counties. Affected sources were required to comply with the rules by May 1, 2005. The cap limits NO_X emissions from dry kilns to no more than 1.7 pounds of NO_X per ton of cement clinker produced (lb/ton of clinker) and limits NO_X emissions from wet kilns to no more than 3.4 lb/ton of clinker. Emissions from any kilns installed after 2005 must be offset with emission reductions at the site or through emission reduction credits. Affected sources were required to comply with the rules by March 1, 2009. When the rule was adopted, the TCEQ estimated that it would result in approximately 9.69 tons per day (tpd) of NO_X emission reductions (see Texas Register June 8, 2007). The Ellis County cement kiln cap is part of the 2007 DFW Attainment Demonstration SIP Revision adopted May 23, 2007 (http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=117&sch=E&div=2&rl=Y).

2.2.4.3 East Texas Engines

The rules in 30 TAC Chapter 117, Subchapter E, Division 4 limit NO_X emissions from certain engines located in Anderson, Brazos, Burleson, Camp, Cass, Cherokee, Franklin, Freestone, Gregg, Grimes, Harrison, Henderson, Hill, Hopkins, Hunt, Lee, Leon, Limestone, Madison, Marion, Morris, Nacogdoches, Navarro, Panola, Rains, Robertson, Rusk, Shelby, Smith, Titus, Upshur, Van Zandt, and Wood Counties (http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=117&sch=E&div=4&rl=Y). The rules apply to stationary, gas-fired, reciprocating internal combustion engines rated 240 horsepower (hp) and larger. Rich-burn gas-fired internal combustion engines rated less than 500 hp must limit NO_X emissions to 1.0 gram per horsepower-hour (g/hp-hr). Rich-burn engines rated 500 hp or greater must limit NO_X emissions to 0.60 g/hp-hr for landfill gas-fired engines or 0.50 g/hp-hr for all other rich-burn engines. Affected sources were required to comply with the rules by March 1, 2010.

Using photochemical modeling sensitivity studies, the TCEQ estimated that implementation of the rules results in an overall reduction of approximately 22.4 tpd of NO_X emissions in the 33 counties subject to the rules by March 1, 2010.

2.2.5 Texas Vehicle Inspection and Maintenance Programs

Since 2005, the TCEQ has implemented mobile source programs that reduce emissions of $PM_{2.5}$ and its precursors. Appendix A: Mobile Source Control Programs Applicable to Texas contains an updated list (March 2014) of federal on-road and non-road mobile sources and state rule revisions that regulate NO_X and PM emissions. Motor vehicle inspection and maintenance programs are in place to maintain the effectiveness of the Federal Motor Vehicle Control Program in the HGB 1997 eight-hour ozone nonattainment; the DFW 1997 eight-hour ozone nonattainment area; the Austin-Round Rock area consisting of Travis and Williamson Counties; and the El Paso area consisting of only El Paso County. The Texas Department of Public Safety administers the programs and the TCEQ maintains oversight of the programs, including collecting and analyzing data directly from the equipment at the inspection stations.

2.2.5.1 Air Check Texas Repair and Replacement Assistance Program

The TCEQ established a financial assistance program for qualified owners of vehicles that fail the emissions test. The purpose of this voluntary program is to remove older, more polluting vehicles from Texas eligible roadways in certain counties with high ozone. The Low Income Vehicle Repair Assistance, Retrofit, and Accelerated Vehicle Retirement Program (LIRAP) provisions of House Bill (HB) 2134, 77th Texas Legislature 2001, created the program. In 2005,

the 79th Texas Legislature modified the program. The LIRAP applies only to counties that implement a vehicle inspection and maintenance program and have elected to implement LIRAP fee provisions. The counties included in LIRAP are Brazoria, Fort Bend, Galveston, Harris, Montgomery, Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, Travis, and Williamson.

SB 12, 80th Texas Legislature 2007, expanded LIRAP participation criteria by increasing the income eligibility to 300% of the federal poverty rate and increasing the amount of assistance toward the replacement of a retired vehicle. HB 3272, 82nd Texas Legislature 2011, Regular Session, expanded the class of vehicles eligible for a $3,500 voucher to include hybrid, electric, natural gas, and federal Tier 2, Bin 3 or cleaner vehicles. The program provides $3,500 for a replacement hybrid, electric, natural gas, and federal Tier 2, Bin 3 or cleaner vehicle of the current model year or the previous three model years; $3,000 for cars of the current or three model years; and $3,000 for trucks of the current or previous two model years. The retired vehicle must be 10-years old or older or have failed an emissions test. In Brazoria, Fort Bend, Galveston, Harris, and Montgomery Counties from December 12, 2007 through November 30, 2014 the program has retired and replaced 22,116 vehicles at a cost of $66,404,813. An additional 16,892 vehicles have had emissions-related repairs at a cost of $9,401,423.

The total repair and retirement/replacement expenditure for Brazoria, Fort Bend, Galveston, Harris, and Montgomery Counties from December 12, 2007 through November 30, 2014 is $75,806,236. HB 1, General Appropriations Bill, 82nd Texas Legislature 2011, Regular Session, continued program funding but at a reduced level. HB 1 appropriated $5.58 million for fiscal year (FY) 2012 and FY 2013 to continue this clean air strategy in the 16 participating counties. Brazoria, Fort Bend, Galveston, Harris, and Montgomery were allocated approximately $2.5 million for FY 2012 and FY 2013. SB 1, General Appropriations Bill, 83rd Texas Legislature 2013, Regular Session, continued funding at a reduced level. SB 1 appropriated $7.04 million for FY 2014 and FY 2015 for use in the 16 participating counties. Brazoria, Fort Bend, Galveston, Harris and Montgomery were allocated approximately $2.5 million for FY 2014 and FY 2015. Accelerated retirement of older, higher polluting vehicles will reduce NO_X, $PM_{2.5}$, and VOC emissions.

2.2.5.2 Texas Low Emissions Diesel Program

The goal of the Texas Low Emissions Diesel (TxLED) program is to lower emissions of NO_X and other pollutants from diesel-powered motor vehicles and non-road equipment. Since diesel contains PM, reductions may co-benefit decreases of PM. It applies to diesel fuel producers, importers, common carriers, distributors, transporters, bulk terminal operators, and retailers. The rules cover 110 counties in eastern Texas, including the 1997 and 2008 eight-hour ozone nonattainment areas of DFW and HGB, and the BPA 1997 eight-hour ozone maintenance area. The rules require that diesel fuel as defined under 30 TAC §114.6 produced for delivery and ultimate sale to the consumer for both on- and non-road use must contain less than 10% by volume of aromatic hydrocarbons and have a cetane number of 48 or greater. The rules, which took effect October 1, 2005, allow some compliance options (30 TAC Chapter 114, Subchapter A, §114.6 and Subchapter H, Division 2, §§114.312 - 114.319). The TCEQ has submitted these rules to the EPA as revisions to the Texas SIP. The EPA approved the TxLED rules on October 6, 2005 and revisions to the rules on October 24, 2008. The TCEQ revised the rules again in August 2012 and submitted the rule revisions to the EPA for approval. The EPA approved the revised TxLED rules as revisions to the Texas SIP on May 6, 2013 (78 FR 26255).

2.2.6 The Texas Emissions Reduction Plan

The Texas Emissions Reduction Plan (TERP) was established by the 77th Texas Legislature in 2001, through the enactment of SB 5. The legislation defines the program's objective to reduce NO_X emissions from older heavy-duty, on-road vehicles and non-road equipment by providing grants and rebates for voluntary upgrades and replacements. The 42 TERP-eligible counties are shown listed and on the map in Figure 2-11: *TERP Eligible Counties and Designated Highways and Roadways*. NO_X is also a precursor of secondary PM and reductions in NO_X for ozone may also result in reductions in PM. Reductions of diesel emissions also have the co-benefit of reducing PM.

From FY 2002 through FY 2014, the TCEQ has issued over $905 million under the primary TERP Diesel Emissions Reduction Incentive (DERI) Program, representing a total of 9,580 projects, or 15,623 individual pieces of equipment and/or vehicles. Appendix B: *TERP Report to the 84th Texas Legislature (2013-2014)*, gives a detailed overview of the programs through 2014. The current numbers for TERP have been updated with 2014 data from the TERP program. From FY 2002 through FY 2014, this level of activity represents a projected reduction of 160,836 tons of NO_X. Table 2-6: TERP DERI Projects Funded from FY 2002 through FY 2014 by Emission Source categorizes emission sources into five types and estimates 53.8 tpd of reduced NO_X in FY 2014. The emissions reductions are estimated based on what the projects funded through FY 2014 are projected to achieve over the period the grant recipient commits to use the grant-funded vehicle or equipment in the eligible areas. The commitment period for most grants is five to seven years, while some projects extend through 10 years or more.

Table 2-4: TERP DERI Projects Funded from FY 2002 through FY 2014 by Emission Source

Emission Source	Number of Projects	Total NO_X Reduced (tons)	Grant Amount (dollars)	Cost Per Ton (dollars)	Estimated NO_X Reduced 2014 (tpd)
Non-Road	5,188	39,884.2889	$289,981,153.09	$7,271	16.5
On-Road	4,201	52,346.0347	$348,178,179.73	$6,651	20.5
Marine	70	13,542.2265	$42,635,085.50	$3,148	3.8
Stationary	71	4,257.7029	$13,427,342.95	$3,154	1.6
Locomotive	48	50,146.1974	$206,321,341.80	$4,114	11.4
Not yet assigned	2	659.9407	$4,600,035.00	$6,970	N/A
Totals	9,580	160,836.3911	$905,143,138.07	$5,628	53.8

TERP DERI projects have typically included:

- purchases of new, low-emission equipment and vehicles;
- replacement of old, high-emission equipment and vehicles with more efficient, less-polluting models;
- retrofit and add-on devices designed to reduce NO_X emissions from equipment and vehicles; and
- infrastructure to support qualifying fuels, electrification, and reduced idling.

Since the creation of the TERP in 2001, there have been several key legislative enhancements, additions, and revisions.

In 2003, HB 1365, 78th Texas Legislature, Regular Session, established a new revenue source of vehicle title fee increases under Texas Transportation Code 501.138(a–b) to replace the original $225 out-of-state vehicle registration fee that was determined unconstitutional and never collected. In addition, under Texas Tax Code 151.0515 the existing surcharge on the sale, lease, or rental of new or used off-road equipment increased from 1 to 2%. A 1% surcharge was added for the sale, lease, or use of model 1997 and later heavy-duty diesel on-road vehicles.

In 2005, HB 2481, 79th Texas Legislature, Regular Session, established cost-effectiveness limits for locomotive and marine vessel grants. The bill also directed the TCEQ to implement a new Rebate Grants program under the TERP incentive programs.

Also in 2005, HB 3469 79th Texas Legislature, Regular Session, added Texas Health and Safety Code (THSC) Chapter 390 authorizing the TCEQ to create and implement a Texas Clean School Bus (TCSB) Program to provide grants for technologies that reduce diesel-exhaust emissions inside the cabin of a school bus. Approved technologies include closed crankcase filtration systems, diesel particulate filters, and diesel oxidation catalysts. Over 7,100 Texas school buses have been retrofitted from FY 2008 through FY 2014.

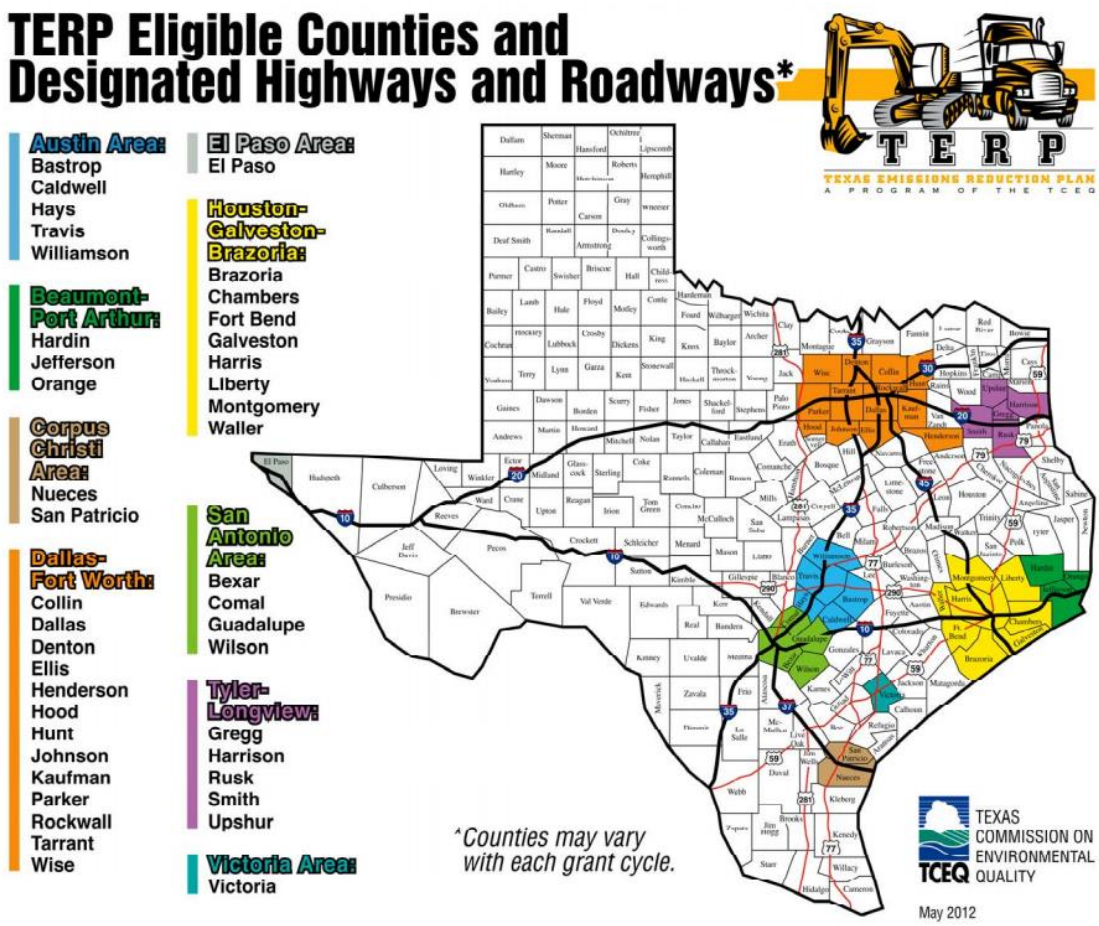


Figure 2-11: TERP Eligible Counties and Designated Highways and Roadways

In 2007, SB 12, 80th Texas Legislature, Regular Session, amended the TERP program. The bill raised the maximum cost-effectiveness of a grant project from $13,000 to $15,000 per ton of

NO_X reduced. In addition, SB 12 added marine vessels to the list of vehicles and equipment for which an electrification or idle-reduction infrastructure project may be funded. The bill authorized the TCEQ to fund other state agencies to lease, purchase, or install idle-reduction infrastructure at rest areas and other public facilities located on major highway transportation routes in eligible nonattainment areas and affected counties.

Also in 2007, HB 160 added "rail relocation and improvement" as a new category to the list of infrastructure projects that may be funded under the TERP. The new project category was designed to fund rail relocation and improvement projects at major rail intersections in the eligible counties to reduce emissions from locomotive and vehicle engine idling.

In 2009, the 81st Texas Legislature, Regular Session, modified some existing TERP programs and added new TERP programs through SB 1759 and HB 1796. SB 1759 established the Texas Clean Fleet Program (TCFP) to provide incentives for owners of large vehicle fleets in Texas to replace diesel vehicles with alternative fuel or hybrid vehicles. This program is authorized through August 2017. HB 1796 established the New Technology Implementation Grant (NTIG) Program to provide incentives for advanced clean energy projects, new technology projects, and electricity storage projects at facilities and stationary sources. In addition, the bill included a new definition of stationary engines under the TERP criteria to authorize grant funding for projects involving gas turbine engines. It also added "Location of use" provisions for projects involving non-road equipment used for natural gas recovery, and extended the TERP program authorization and fee sources through August 2019.

In 2011, the 82nd Texas Legislature, Regular Session, modified existing TERP programs. HB 3399 modified some of the criteria applying to the TERP Emissions Reduction Incentive Grants Program, Small Business and Rebate Grants Programs, Third-Party Grants Program, and the TCFP. Changes and additions to the program eligibility criteria included: changes to the period over which a grant-funded vehicle must be operated to either five years or 400,000 miles, whichever occurs earlier; more specific criteria for decommissioning a vehicle or vehicle engine under the program; and provisions to allow a vehicle that has been leased or otherwise commercially financed to be replaced under the program.

SB 385 and SB 20 established the same new programs, with SB 385 serving as the controlling legislation since it was enacted last. The additional programs include the following:

- the Alternative Fueling Facilities Program (AFFP);
- the Clean Transportation Triangle (CTT) Program; and
- the Texas Natural Gas Vehicle Grant Program (TNGVGP).

The AFFP was established to fund fueling facilities for alternative fuels in the state's nonattainment areas. The CTT provides funding for fueling facilities specifically for compressed natural gas (CNG) and liquefied natural gas (LNG) within three miles of the interstate highways connecting the Houston, Dallas, Fort Worth, and San Antonio areas. The TNGVGP provides grant funding for replacing medium and heavy-duty on-road vehicles with vehicles fueled by CNG or LNG. Vehicles funded under the TNGVGP must be operated at least 75% of the annual miles in the state's nonattainment areas and along the interstate highways designated under the CTT Program. SB 527 revised the allocation percentages for use of the TERP Fund, eliminated the New Technology Research Development Program, and established a new program for monitoring air quality in the North Texas region.

In 2013, the 83rd Texas Legislature, Regular Session, enacted SB 1727, raising the criteria for several existing TERP programs and adding additional programs.

- A new Drayage Truck Incentive Program (DTIP) was established under THSC Chapter 386, Subchapter D-1. This program funds replacement of drayage trucks transporting a load to or from a seaport or rail yard located in a nonattainment area.
- The Light-Duty Motor Vehicle Purchase or Lease Incentive Program authorized under THSC Chapter 386, Subchapter D, was revised and the funding allocation to the program, which was removed by the Legislature in 2003, was restored. The revised program provides rebates of up to $2,500 for the purchase or lease of light-duty motor vehicles powered by compressed natural gas, liquefied petroleum gas, dedicated electric drive, and plug-in hybrid electric drive.
- The recent revisions to the program authorized rebates for the purchase of light-duty motor vehicles powered by natural gas, propane, or electricity. The administration of the rebates was transferred by the CPA to the TCEQ. The Texas Legislature also authorized funding for the program.
- The DERI Program established under THSC Chapter 386, Subchapter C, was revised to remove the maximum limit on the cost-effectiveness of a project funded under the program. The TCEQ may now establish higher limits, as needed to ensure effective implementation of the program. The TCEQ is also authorized to consider systems for converting a diesel engine to dual-fuel operation using both diesel and natural gas, including provisions for establishing a lower minimum standard for the percentage reduction in NO_X emissions than for the other projects and to consider test data and other information in determining the emissions reductions that can be attributed to the conversion of an engine.
- The TCFP established under THSC Chapter 392 was revised. The limits on the percentage of incremental costs that may be covered by a grant were simplified to just require that for any grant, the grant amount may not exceed 80% of the costs. Previously, different percentage limits were set according to the model year of the vehicle and engine being replaced. Also, alternative criteria were established authorizing the TCEQ to allow projects involving trucks used to transport raw agricultural products from the point of production to certain eligible counties that travel less than 75% of annual mileage in the eligible counties to be eligible for a grant.
- The maximum grant amount authorized for the AFFP established under THSC Chapter 393 was changed from $500,000 to $600,000.
- The eligible counties under the Texas CTT Program established under THSC Chapter 394 were expanded to include the counties designated as Affected Counties under THSC, 386.001(2) and the counties located within the triangular area between the Houston, Dallas-Fort Worth, and San Antonio areas. The maximum grant awards were also increased: funding for stations providing CNG was increased from $100,000 to $400,000; funding for stations providing LNG was increased from $250,000 to $400,000; and funding for stations provision both compressed and LNG was increased from $400,000 to $600,000.
- The TNGVGP established under THSC Chapter 394 was also revised to expand the counties in which grant-funded vehicles may travel to correspond to the expansion of the TCFP counties. Also, alternative criteria were established authorizing the TCEQ to allow projects involving trucks used to transport raw agricultural products from the point of production to certain eligible counties that travel less than 75% of annual mileage in the eligible counties to be eligible for a grant.

The TERP revenue is allocated through appropriations from the state legislature. Table 2-5: *TERP Funding* shows the TERP funding allocations to the TCEQ for FY 2010 through FY 2015.

Table 2-5: TERP Funding

Fiscal Year	2012	2013	2014	2015
TCEQ Allocation (includes funding for administration)	$65,165,047	$65,165,047	$77,596,164	$77,596,163

2.2.6.1 NTIG Program

The initial NTIG Program application round opened in August 2010. The TCEQ reviewed three proposals for electricity storage projects and awarded two projects in FY 2011: a thermal storage system (in Floyd County) and an energy storage system for compressed air (in Gaines County), both capturing wind energy. However, the thermal storage project did not go forward, leaving the compressed air project that was awarded $3.7 million. The latest application period closed June 2014. The program received four applications totaling $4,133,593.

2.2.6.2 TNGVGP

As of August 31, 2014, the TCEQ had selected 57 projects for funding under the TNGVGP. These projects will replace 714 vehicles with new natural gas vehicles, for a total funding amount of $36,487,425. This program has been allocated $24,935,850 for the 2014-2015 fiscal biennium.

2.2.6.3 CTT

The CTT Program was implemented in FY 2012. From the beginning of the program through FY 2013, the TCEQ has issued 18 grants for natural gas fueling stations located in the CTT for $3,900,000. The CTT has been allocated $3.8 million per year for the 2014 through 2015 fiscal biennium. The original CTT criteria required that eligible stations be located within three miles of an interstate highway connecting Houston, Dallas, Fort Worth, and San Antonio. Changes by the Texas Legislature in 2013 expanded the eligible areas to include the counties in and between the Houston, San Antonio, and DFW areas, the state's nonattainment areas, and other counties designated as affected counties under THSC, §386.001.

2.2.6.4 AFFP

The AFFP was also implemented in FY 2012. Through FY 2014, the TCEQ issued four grants for natural gas fueling stations in the nonattainment areas totaling $1,786,602. The AFFP has also been allocated $3.8 million per year for the FY 2014 through FY 2015 fiscal biennium.

A combined application period (CTT and AFFP) for the 2014 through 2015 biennium resulted in $32 million in applications for a combined funding amount for the two programs of $15,519,232. The grant awards are pending contract execution in FY 2015.

2.2.6.5 TCSB Program

Over the 2014 through 2015 biennium, the legislature appropriated $3,103,847 for the FY 2014 and $3,103,847 for the FY 2015 TCSB Program to install retrofit devices to reduce diesel exhaust emissions from school buses throughout the state. The TCEQ has also supplemented state funding with federal funding, including $115,278 in State Clean Diesel funds awarded by the EPA in FY 2014.

From 2005 through FY 2014, the TCSB Program funded the retrofit of 7,103 school buses, for a total funding amount of $25,946,067, including $21,614,775 in state TERP funds and $4,331,292 in federal funds awarded by the EPA under the State Clean Diesel program.

2.2.6.6 DERI Program

From 2001 through FY 2014, the TCEQ has awarded approximately 9,580 grants under the DERI Program for $905,143,138. This total includes 234 grants for $12,632,318 in federal American Recovery and Reinvestment Act stimulus funds awarded under a special grant round in FY 2010. The combined DERI projects are currently estimated to reduce a total of 160,836 tons of NO_X emissions over the life of the each project. Each project may include multiple activities for the replacement, repower, or retrofit of on-road vehicles, non-road equipment, locomotives, marine vessels, and stationary equipment. Some projects may also include infrastructure for alternative fuel or electricity, or to reduce idling of vehicles and equipment. The DERI Program includes the Emissions Reduction Incentive Grants Program, Rebate Grants Program, and Third-Party Grants Program. The DERI Program has been allocated a total of $34.2 million per year for the 2014 through 2015 fiscal biennium.

2.2.6.7 TCFP

From FY 2011 through FY 2014 the TCEQ awarded 12 grants for $23,595,115 for replacement of diesel vehicles with alternative fuel vehicles under the TCFP. These grants are currently projected to reduce NO_X emissions by a total of 305 tons of NO_X. The TCFP has been allocated $3.8 million per year for the 2014 through 2015 fiscal biennium.

2.2.6.8 DTIP

The DTIP was established by SB 1727 in 2013 to fund replacement of drayage trucks operating at seaports and rail yards in the state's air quality nonattainment areas. The DTIP was implemented in FY 2015, with an authorized funding amount of at least $3.2 million.

2.2.6.9 Light-Duty Motor Vehicle Purchase or Lease Incentive Program

The Light-Duty Motor Vehicle Purchase or Lease Incentive Program was revised by SB 1727 in 2013 to provide rebates of $2,500 for the purchase of light-duty natural gas, propane, and plug-in electric vehicles. This program was implemented in 2014 and is allocated $3.8 million per year for the 2014 through 2015 fiscal biennium. Through January 1, 2015, the program had funded $1,923,750 in rebate contracts, from an available funding amount of $7,759,616 for the biennium.

2.2.6.10 Energy-Efficiency Programs

Goal for Energy Efficiency by Electric Utilities

Electric utilities are required to establish and administer energy efficiency programs. Rules adopted by the PUC establish a savings goal for electric utilities of 30% of growth in demand and a goal to reduce four-tenths of one percent of summer weather-adjusted peak demand in subsequent years once the utility reaches the 30% goals. Under the TERP requirements, the PUC provides information on these programs to the Energy Systems Laboratory (ESL), at the Texas Engineering Experiment Station of the Texas A&M University System, to assess the emissions reductions achieved through these programs.

Texas Building Energy Performance Standards

The original TERP legislation (SB 5 in 2001) adopted the energy efficiency chapter of the International Residential Code for single-family construction and the International Energy Efficiency Code (IECC) for all other construction. Under the TERP requirements, the ESL is responsible for determining the energy savings and emissions reductions from energy code adoption.

Energy-Efficiency Programs in Certain Political Subdivisions

The State Energy Conservation Office within the Texas Comptroller of Public Accounts works with state and local governmental entities in nonattainment areas to establish and implement goals to reduce electrical consumption by 5% per year for 10 years beginning September 1, 2011. Additionally, the ESL assists these local governments and assesses the estimated energy savings and reductions in NO_X emissions.

ESL Assessment of Effectiveness of Energy-Efficiency 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 listed above, the TCEQ contracts with the ESL for the annual computation of statewide emissions reductions obtained through wind and renewable energy resources. The ESL has also assessed electricity savings from residential air conditioner replacements, assuming that air conditioners in existing homes are replaced with more efficient seasonal energy efficient ratio (SEER) 13 units, versus an average of SEER 11.

2.2.7 Other State Energy Efficiency and Renewable Energy Measures

In 2005, 79th First Special Session, the Texas Legislature adopted SB 20 to expand Texas' target for renewable energy originally established in SB 7 in 1999, 76th Regular Session. Under SB 20, multiple milestones for installed renewable energy capacity were established through 2025 (Haberl, J. et al. 2012). The final target milestone in January 2025 was 10,000 megawatts (MW) of installed renewable capacity. Texas surpassed the 2025 target of 10,000 MW in 2010, primarily through wind generation. Additional information regarding Texas' progress with implementation of renewable energy may be found on the Texas A&M Engineering Experiment Station ESL's TERP: Letters and Reports Web page (http://esl.tamu.edu/terp/reports).

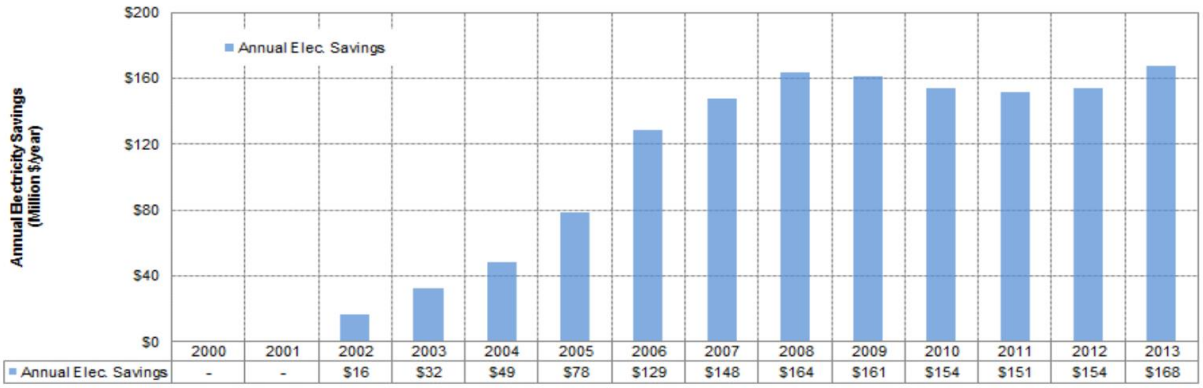
In 2007, 80th Regular Session, SB 12 expanded the requirement in the THSC, §388.005 for certain political subdivisions to set a goal of a reduction of 5% per year in electrical consumption to include institutions of higher education and state agencies. SB 898 in 2011, 82nd Regular Session, extended this requirement for an additional ten years beginning 2011.

The October 2014 report from ESL on *Statewide Electricity and Demand Capacity Savings from the International Energy Conservation Code (IECC) Adoption for Single-Family Residences in Texas (2002 through 2013)* is the continuation of the previous 2013 Statewide Electricity Savings report from code-compliant, single-family residences built between 2002 through 2011 (ESL 2013). Statewide electricity and electric demand savings achieved from the adoption of the different IECC versions for single-family residences in Texas and the corresponding construction cost increases over the twelve-year period from 2002 through 2013 are presented in this report. Using the ESL International Code Compliance Calculator simulation program, the annual electricity savings in 2013 are estimated to be $168 million, and the demand reductions in 2013 are estimated to be 1,166 MW for the summer and 1,175 MW for the winter periods.

The cumulative statewide electricity and electric demand savings over the twelve-year period from 2002 through 2013 are approximately $3.0 billion for the summer ($1.4 billion from electricity savings and $1.6 billion from demand savings) and approximately $3.0 billion for the winter periods ($1.4 billion from electricity savings and $1.6 billion from demand savings).

The total increased costs are estimated to be $1.06 billion. Figure 2-12: *Annual Statewide Electricity Savings from the IECC Code Adoption for New Single-Family Residences in Texas: 2002 through 2013* and Figure 2-13: *Annual Statewide Electric Demand Reductions from the*

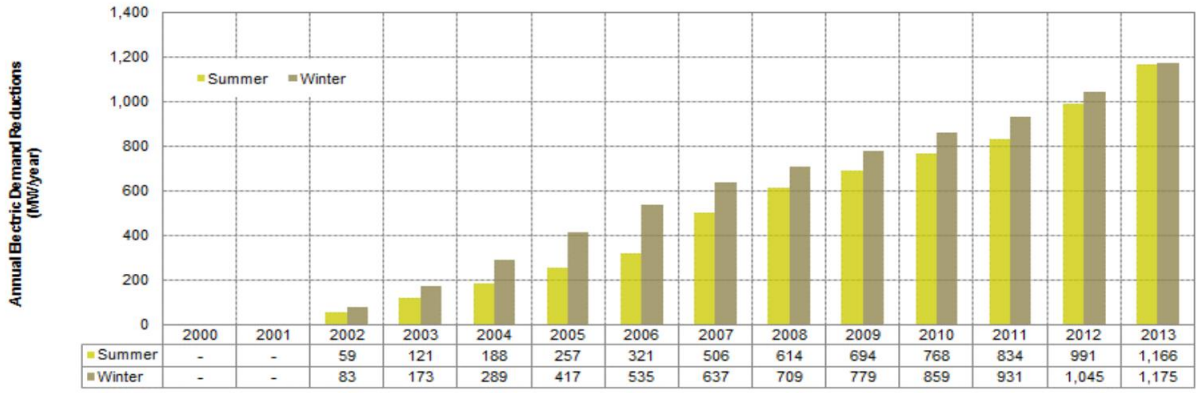
IECC Code Adoption for New Single-Family Residences in Texas: 2002 through 2013 show the annual statewide electricity savings and demand reductions. Figure 2-14: *Cumulative Increased Costs, Statewide Electricity and Electric Demand Savings Associated with the IECC Code Adoption for Single-Family Residences in Texas: 2002 through 2013* shows the cumulative statewide increased costs with the cumulative statewide electricity and demand savings from code-compliant, single-family residences built between 2002 and 2013.



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Annual Elec. Savings	-	-	$16	$32	$49	$78	$129	$148	$164	$161	$154	$151	$154	$168

Source: Statewide IECC Electricity Savings Report (2002 through 2013), p.3

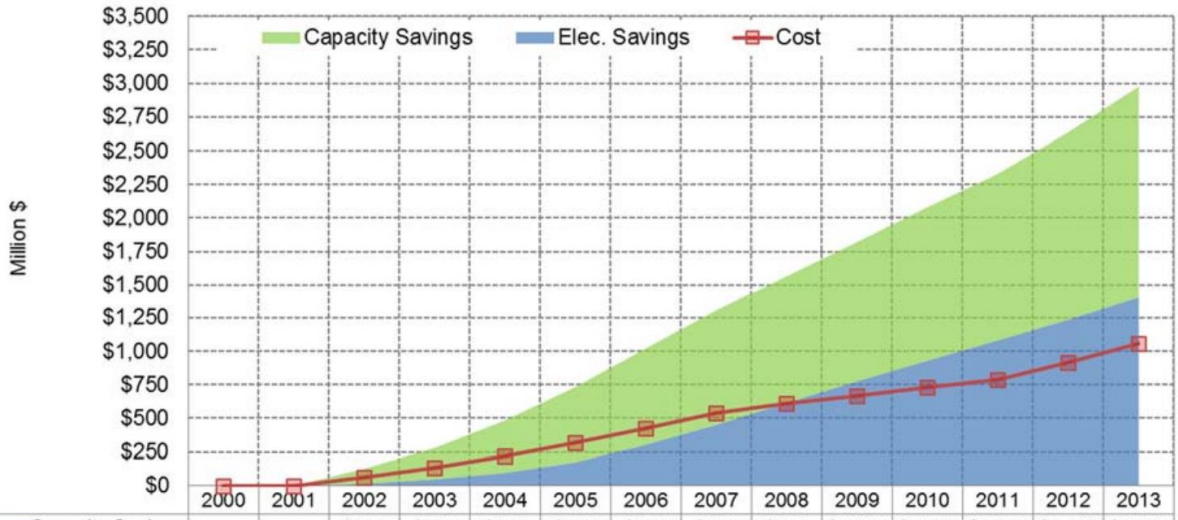
Figure 2-12: Annual Statewide Electricity Savings from the IECC Code Adoption for New Single-Family Residences in Texas: 2002 through 2013



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Summer	-	-	59	121	188	257	321	506	614	694	768	834	991	1,166
Winter	-	-	83	173	289	417	535	637	709	779	859	931	1,045	1,175

Source: Statewide IECC Electricity Savings Report (2002 through 2013), p.3

Figure 2-13: Annual Statewide Electric Demand Reductions from the IECC Code Adoption for New Single-Family Residences in Texas: 2002 through 2013



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Capacity Savings	-	-	$111	$232	$387	$558	$717	$854	$949	$1,044	$1,151	$1,248	$1,400	$1,574
Elec. Savings	-	-	$16	$48	$97	$175	$304	$451	$615	$776	$930	$1,082	$1,236	$1,403
Cost	-	-	$64	$136	$218	$321	$422	$536	$610	$669	$729	$788	$914	$1,060

For electric demand savings, the estimation for the winter periods ($1.57 billion, cumulative) was displayed instead of summer ($1.56 billion, cumulative).
Source: Statewide IECC Electricity Savings Report (2002 through 2013), p.4

Figure 2-14: Cumulative Increased Costs, Statewide Electricity and Electric Demand Savings Associated with the IECC Code Adoption for Single-Family Residences in Texas: 2002 through 2013

2.2.8 SO_2 Emissions Reductions Resulting from EGU Shutdowns

The shutdown of various units at different source categories in Texas has resulted in approximately 8,827 tpy of actual emission reductions in SO_2 as shown in following Table 2-6: *Texas SO_2 Emissions Reductions Resulting from EGU Shutdowns*. Emission reductions are based on 2009 actual emissions reported to the TCEQ. The TCEQ considered data from 2009 through 2014. The TCEQ excluded EGUs that were retired between 2009 and 2014 that had zero SO_2 emissions in 2009 as well as those scheduled for retirement in the future since they could not yet be confirmed in a permit or some other permanent, enforceable mechanism. The Emission Point Number (EPN) is a facility identifier created by the site owner/operator and is unique to the emissions sources at the site.

Table 2-6: Texas SO_2 Emissions Reductions Resulting from EGU Shutdowns

Regulated Entity Number	County	Standard Industrial Classification (SIC)	Emission Point Number (EPN)*	EPN Name	Actual 2009 Emissions (tpy)	Shutdown Year	Comment
RN100210517	MOORE	2911	B-3	STACK	0.16	2010	Decommissioned December 2010.
RN100210517	MOORE	2911	B-5	STACK	0.01	2010	Decommissioned
RN100211408	PECOS	1321	WAU24	ENGINE 24	0.33	2010	Removed from site
RN100211663	NUECES	2911	COGEN-1	EAST COGENERATION UNIT	0.01	2010	No longer in service
RN100211663	NUECES	2911	COGEN-2	WEST COGENERATION UNIT	0.1	2010	No longer in service
RN100211879	HARRIS	2911	PORTA-COMP	PORTACOMP: PORTABLE AIR COMPRE	0.83	2010	Shutdown
RN100213941	EL PASO	3312	MISCHTR	MISC. HEATERS VENT	0.02	2010	Shutdown
RN100214873	FREESTONE	1311	10B	AMINE REBOILER / INCINERATOR	80.82	2010	Shutdown end of first quarter 2009.
RN100216621	MCMULLEN	1321	TBS-1	STACK	0.03	2010	Unit deleted and removed from site. Standard permit 85028 revision February 2010.
RN100218080	DALLAS	3253	KS-3	KILN STACK	0.15	2011	Removed January 2011.
RN100218684	ANDREWS	1321	COMSTK-38	ENGINE STACK	0.01	2010	Unit no longer in existence.
RN100218684	ANDREWS	1321	HOHSTK-A	HEATER A	0.03	2009	
RN100218684	ANDREWS	1321	HOHSTK-B	HEATER B	0.03	2009	
RN100219351	GALVESTON	2869	E01A048	DIST_EPT_VAPOR INCINERATOR-E01	0.01	2009	

Regulated Entity Number	County	Standard Industrial Classification (SIC)	Emission Point Number (EPN)*	EPN Name	Actual 2009 Emissions (tpy)	Shutdown Year	Comment
RN100222330	ECTOR	1321	STK-20R-2	ENGINE STACK	0.02	2009	Not in service
RN100222330	ECTOR	1321	STK-22R-1	ENGINE STACK	0.01	2009	Not in service
RN100222330	ECTOR	1321	TUR-B2 STK	TURBINE STACK	0.06	2009	Not in service
RN100224104	BOWIE	9711	1025-01ARE	E.P.N. 128	0.11	2011	Closed June 2011
RN100224104	BOWIE	9711	1025-02ARE	OPEN BRNNG. SMKLSS. PWDR.	0.12	2011	Closed June 2011
RN100224104	BOWIE	9711	1025-03ARE	SMOKELESS POWDER BURN	0.05	2011	Closed June 2011
RN100227016	HARRIS	2869	49MN294-ST	ACETIC ACID LOADING INC.	0.31	2010	EPN has been removed and is no longer in service.
RN100227016	HARRIS	2869	49MN294-ST	ACETIC ACID LOADING INC.	0.31	2010	EPN has been removed and is no longer in service.
RN100227289	HEMPHILL	4922	AGI	ACID GAS INCINERATOR	218.29	2011	EPN AGI was removed from permit in 2011 amendment.
RN100227289	HEMPHILL	4922	BE3	BROACH HEATER STACKS	4.08	2010	Shutdown
RN100227289	HEMPHILL	4922	BE3A	BROACH HEATER STACK	4.08	2010	Shutdown
RN100227792	CARSON	1311	11	WHITE SUPERIOR "12G825"	0.01	2010	Removed from site in 2010.
RN100238385	GALVESTON	2911	EB-28	PACKAGE BOILER STACK	2.16	2009	Boiler 28 has been permanently shut down.

Regulated Entity Number	County	Standard Industrial Classification (SIC)	Emission Point Number (EPN)*	EPN Name	Actual 2009 Emissions (tpy)	Shutdown Year	Comment
RN100250869	HOWARD	2911	24TEMP-4BLR	NS WABASH BOILER	2.3	2010	Temporary boiler. Shutdown June 18, 2010.
RN101621944	HARRIS	2874	BLRV001	NATIONWIDE BOILER	0.01	2010	No longer in operation.
RN101621944	HARRIS	2874	TEMPBOIL	CISCO BOILER	0.01	2011	No longer in operation.
RN101634368	HALE	2011	B1	#1 BOILER STACK	0.07	2010	Boiler was removed from service November 12, 2010.
RN101634368	HALE	2011	B2	#2 BOILER STACK	0.01	2010	Boiler was removed from service July 12, 2010.
RN101634368	HALE	2011	B3	#3 BOILER STACK	20.64	2010	Boiler was removed from service July 22, 2010.
RN102166964	CASS	1321	BLRS-1	BOILER STACK NO. 1	0.04	2010	Shutdown
RN102166964	CASS	1321	BLRS-2	BOILER STACK NO. 2	0.03	2010	Shutdown
RN102166964	CASS	1321	BLRS-3	BOILER STACK NO. 3	0.03	2010	Shutdown
RN102166964	CASS	1321	INCIN-1	INCINERATOR EMISSIONS	880.97	2010	Shutdown
RN102166964	CASS	1321	RFCS-1	REFRG. COMPRESSOR STACK 1	0.01	2010	Shutdown
RN102166964	CASS	1321	RFCS-2	REFRIG. COMPRESSOR STACK	0.01	2010	Shutdown
RN102166964	CASS	1321	TCS-1	TURBINE COMPRESSOR STACK	0.01	2010	Shutdown
RN102166964	CASS	1321	TCS-2	TURBINE COMPRESSOR STACK	0.02	2010	Shutdown

Regulated Entity Number	County	Standard Industrial Classification (SIC)	Emission Point Number (EPN)*	EPN Name	Actual 2009 Emissions (tpy)	Shutdown Year	Comment
RN102166964	CASS	1321	TCS-3	TURBINE COMPRESSOR STACK	0.01	2010	Shutdown
RN102320850	HUTCHINSON	2869	M2A	FLAKER VENT	0.01	2009	Shutdown
RN102522539	REEVES	4922	INCIN-1	INCINERATOR	3473.57	2010	Source no longer in service. Amendment finalized August 2010.
RN102535077	GALVESTON	2911	CONENG1	CONENG1 STACK	0.13	2010	Engine removed from site in first quarter 2010.
RN102535077	GALVESTON	2911	CONENG2	CONENG2 STACK	0.37	2010	Engine removed from site in first quarter 2010.
RN102535077	GALVESTON	2911	CONENG3	CONENG3 STACK	0.1	2010	Engine removed from site in first quarter 2010.
RN102579307	HARRIS	2911	TEMPBLR1	TEMP BOILER 1	0.01	2010	Shutdown
RN102579307	HARRIS	2911	TEMPBLR2	TEMP BOILER 2	0.01	2010	Shutdown
RN102579307	HARRIS	2911	TEMPBLR3	TEMP BOILER 3	0.01	2010	Shutdown
RN102579307	HARRIS	2911	TEMPBLR4	TEMP BOILER 4	0.01	2010	Shutdown
RN102579307	HARRIS	2911	TEMPBLR5	TEMP BOILER 5	0.01	2010	Shutdown
RN102579307	HARRIS	2911	TEMPBLR6	TEMP BOILER 6	0.01	2010	Shutdown
RN103363826	WILLACY	1311	FLAR1	FLARE # 1	52.75	2010	Facility ceased operation on September 11, 2010. Standard permit cancelled in March 2011.
RN100219468	LLANO	4911	STACK 1	STACK	3.06	2013	Retired 2013

Regulated Entity Number	County	Standard Industrial Classification (SIC)	Emission Point Number (EPN)*	EPN Name	Actual 2009 Emissions (tpy)	Shutdown Year	Comment
RN100664812	HOOD	4911	DC-B1S	BOILER #1 STACK	1.08	2010	Retired 2010
RN101698520	McLENNAN	4911	LC-B1 & B2	UNIT 1 & 2 BOILER STACK	0.22	2010	Retired 2010
RN102566494	McLENNAN	4911	TH-B2S	BOILER #2 STACK	0.89	2010	Retired 2010
RN102183969	WARD	4911	PB-S5	UNIT 5 STACK	0.14	2010	Retired 2010
RN100217611	BEXAR	4911	E-3	STEAM GENERATOR STACK 3	0.03	2009	Retried 2009
RN100223395	NOLAN	4911	4.1 & 4.2 & 4.3	TURB. STACK	0.015	2009	Retired 2009
RN100216837	HARRIS	4911	10	BOILER STACK	4078	2014	Retired 2014
					SUM=8826.75		

Note: This table does not include EGUs that were retired between 2009 and 2014 that had zero SO_2 emissions in 2009 or EGUs scheduled for retirement in the future.
Source: TCEQ

2.2.9 References

EPA, 2014a. "Final Area Designations for the 2012 National Air Quality Standard for Fine Particles," last modified January 30, 2015, http://www.epa.gov/pmdesignations/2012standards/regs.htm

EPA, 2014b. "EPA Revises the National Ambient Air Quality Standards for Particle Pollution," Last modified September 11, 2014, http://www.epa.gov/airquality/particlepollution/actions.html#dec12

2.2.10 Summary

Overall, monitoring data do not suggest that emissions from Texas contribute significantly to nonattainment or interfere with maintenance of the 2012 primary annual $PM_{2.5}$ NAAQS for areas in any other state. Additionally, the EPA's projections also show that Texas is not likely to affect other state's attainment or maintenance status of the annual $PM_{2.5}$ NAAQS. Texas has numerous control measures in place to address $PM_{2.5}$ precursor emissions and all are federally enforceable through SIP revisions. These measures have resulted in significant decreases in $PM_{2.5}$ design values from 2002 to 2013, with much of the decreases occurring from 2007 to 2013. With implementation of the 2012 $PM_{2.5}$ standard, decreases in design values are expected to continue.

CHAPTER 3: FUTURE REVISIONS TO THE NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Federal Clean Air Act (FCAA), §110(a)(1) requires states to submit state implementation plans within three years after the promulgation of new or revised National Ambient Air Quality Standards (NAAQS) to meet the requirements of FCAA, §110(a)(2), including FCAA, §110(a)(2)(D)(i)(I), relating to interstate transport. Therefore, if the NAAQS are revised in the future, the Texas Commission on Environmental Quality will need to take the adequate steps relating to the interstate transport of air pollution.