TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

AGENDA ITEM REQUEST

for State Implementation Plan Revision Adoption

AGENDA REQUESTED: November 4, 2015

DATE OF REQUEST: October 16, 2015

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

CAPTION: Docket No. 2015-0118-SIP. Consideration of the adoption of 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).

This SIP revision outlines 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 SIP revision also includes a technical demonstration to support the determination that Texas meets the interstate transport requirements of Section 110(a)(2)(D)(i)(I). (Kristin Patton, 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 X YES

Texas Commission on Environmental Quality
Interoffice Memorandum

To: Commissioners **Date:** October 16, 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 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 SIP revision outlines 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 SIP revision documents that the Texas SIP at 40 Code of Federal Regulations (CFR) 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 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 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 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 SIP revision would have no new effect on agency programs.

Re: Docket No. 2015-0118-SIP

Stakeholder meetings:
The proposed SIP revision went through a public review and comment period including one public hearing.

Public comment:
The commission offered a public hearing on the proposed SIP revision in Austin on June 16, 2015. The hearing was not opened as no attendees signed in to speak. Notice of the public hearing was published in the *Texas Register* and the *Austin American-Statesman*, *Fort Worth Star-Telegram*, and *Houston Chronicle* newspapers.

The public comment period opened on May 15, 2015 and closed on June 22, 2015. During the comment period, staff received written comments from the Sierra Club. The comments generally concerned perceived inadequacies of the technical analysis used to evaluate whether emissions from Texas significantly contribute to nonattainment or interfere with maintenance of the NAAQS in another state. A summary of the comments and the TCEQ response is provided as part of this SIP revision in the Response to Comments.

Significant changes from proposal:
The proposed SIP revision included a technical analysis based on annual $PM_{2.5}$ design values through 2013, which were the most recent annual $PM_{2.5}$ design values available at the time of proposal. Between proposal and adoption, the SIP revision was updated to incorporate 2014 design values. In addition, design values were updated to exclude exceptional events that occurred in El Paso in 2011 and 2012 that were concurred by the EPA on July 7, 2015.

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 sulfur dioxide (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 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 December 9, 2015.

On June 12, 2015, in response to a petition for rulemaking from the Sierra Club, the EPA finalized a SIP call related to provisions in SIPs concerning how air agency rules in EPA-approved SIPs treat excess emissions during periods of startup, shutdown, and

malfunction (SSM) of industrial source process or emission control equipment. Although not one of the states named in the Sierra Club's petition, the EPA's final rule included Texas. The State of Texas and the TCEQ disagree with the EPA that the TCEQ's SIP-approved affirmative defense rule for certain excess emissions is substantially inadequate to meet FCAA requirements and are challenging the EPA's SIP call.

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. On September 4, 2015, the EPA published a direct final rule in the *Federal Register* to correct the CFR to reflect that Texas now has a SIP-approved GHG permitting program (80 FR 53467). The rule will be effective November 3, 2015.

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 nitrogen oxides (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. On July 28, 2015, the United States Court of Appeals for the District of Columbia ruled that the 2014 annual SO_2 budgets and the 2014 ozone season NO_X budgets for Texas were invalid because they required overcontrol of Texas emissions, and remanded these budgets back to the EPA without vacatur.

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

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 adoption SIP revision schedule:
Anticipated adoption date: November 4, 2015
EPA due date: December 14, 2015

Re: Docket No. 2015-0118-SIP

Agency contacts:
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cc: Chief Clerk, 2 copies
Executive Director's Office
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Jim Rizk
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Office of General Counsel
Kristin Patton

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
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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

Adoption
November 4, 2015

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EXECUTIVE SUMMARY

This 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 (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 of 35 µg/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 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. Because the infrastructure demonstration explains how the existing Texas statutes and rules allow the state to meet its obligations under the FCAA, this 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 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 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, 2013, and 2015. 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, 2015
TEXAS WATER CODE	September 1, 2015

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	March 15, 2007
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	June 25, 2015
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	May 21, 2015
Chapter 115: Control of Air Pollution from Volatile Organic Compounds	June 25, 2015
Chapter 116: Permits for New Construction or Modification	July 31, 2014
Chapter 117: Control of Air Pollution from Nitrogen Compounds	June 25, 2015
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 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 SIP revision provides 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 (CFR) 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 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

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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)

part of the infrastructure SIP revisions that Texas is required to submit as new or 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 SIP revision reflects the methods and means by which Texas meets these requirements at the time of this 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, 2011, 2013, and 2015. 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:

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§5.052.	MEMBERS OF THE COMMISSION; APPOINTMENT
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§5.054.	REMOVAL OF COMMISSION MEMBERS
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§5.501.	EMERGENCY AND TEMPORARY ORDER OR PERMIT; TEMPORARY SUSPENSION OR AMENDMENT OF PERMIT CONDITION
§5.502.	APPLICATION FOR EMERGENCY OR TEMPORARY ORDER

§5.514.	ORDER ISSUED UNDER AIR EMERGENCY
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§5.701(a)	FEES
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§5.704.	NOTICE OF CHANGE IN PAYMENT PROCEDURE
§5.705.	NOTICE OF VIOLATION
§7.002.	ENFORCEMENT AUTHORITY
§7.032.	INJUNCTIVE RELIEF
§7.051.	ADMINISTRATIVE PENALTY
§7.052.	MAXIMUM PENALTY
§7.053.	FACTORS TO BE CONSIDERED IN DETERMINATION OF PENALTY AMOUNT
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§7.178.	FAILURE TO PAY FEES UNDER CLEAN AIR ACT
§7.179.	FALSE REPRESENTATIONS UNDER CLEAN AIR ACT
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§7.182.	RECKLESS EMISSION OF AIR CONTAMINANT AND ENDANGERMENT
§7.183.	INTENTIONAL OR KNOWING EMISSION OF AIR CONTAMINANT AND KNOWING ENDANGERMENT
§7.186.	SEPARATE OFFENSES
§7.187.	PENALTIES
§7.302.	GROUNDS FOR REVOCATION OR SUSPENSION OF PERMIT

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. Although the EPA originally disapproved of the Texas infrastructure SIP for the 1997 eight-hour ozone, and for the 1997 and 2006 $PM_{2.5}$ NAAQS for not containing provisions for the permitting of greenhouse gases, on September 4, 2015 the EPA published a direct final rule in the *Federal Register* to correct the CFR to reflect that Texas now has a SIP-approved GHG permitting program (80 FR 53467). The rule will be effective November 3, 2015. Texas has a robust, SIP-approved permitting program and therefore has met the infrastructure requirements of §110(a)(2).

On June 12, 2015, in response to a petition for rulemaking from the Sierra Club, the EPA finalized a SIP call related to provisions in SIPs concerning how air agency rules in EPA-approved SIPs treat excess emissions during periods of startup, shutdown, and malfunction (SSM) of industrial source process or emission control equipment. Although not one of the states named in the Sierra Club's petition, the EPA's final rule included Texas. The State of Texas and the TCEQ disagree with the EPA that the TCEQ's SIP-approved affirmative defense rule for certain excess emissions is substantially inadequate to meet FCAA requirements and are challenging the EPA's SIP call.

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

[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).

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);

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).[4] 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 December 9, 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

[4] 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).

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.

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).[5] 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 issue 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 has replaced the TCEQ's reliance on CAIR with a FIP implementing the Cross State Air Pollution Rule (CSAPR) in Texas.[6] The EPA is scheduled to take final action by December 9, 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

<u>FCAA, §110(a)(2)(K)</u>
<u>Federal Requirement</u>

(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;

<u>Texas Requirement</u>
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

[5] Approval and Promulgation of Implementation Plans; Texas; Public Participation for Air Quality Permit Applications, 79 FR 551 (January 6, 2014).
[6] Litigation over CSAPR is still ongoing; a second round of oral arguments was heard by the D.C. Circuit Court on February 25, 2015. However, the D.C. Circuit lifted the stay on CSAPR and the EPA began implementing the rule on January 1, 2015. On July 28, 2015 the D.C. Circuit ruled that the 2014 annual SO_2 budgets and the 2014 ozone season NO_X budgets for Texas were invalid because they required overcontrol of Texas emissions, and remanded these budgets back to the EPA without vacatur.

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:

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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LIST OF ACRONYMS

AFFP	Alternative Fueling Facilities Program
BPA	Beaumont-Port Arthur
CAIR	Clean Air Interstate Rule
CFR	Code of Federal Regulations
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 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 commission offered a public hearing on the proposed SIP revision on June 16, 2015 at 2:00 p.m. in Austin at the TCEQ Headquarters. The hearing was not opened as no attendees signed in to speak. Notice of the public hearing was published in the *Texas Register* and the *Austin American-Statesman*, *Fort Worth Star-Telegram*, and *Houston Chronicle* newspapers.

The public comment period opened on May 15, 2015 and closed on June 22, 2015. Written comments were accepted via mail, fax, and through the eComments (http://www1.tceq.texas.gov/rules/ecomments/index.cfm) system. During the comment period, staff received written comments from the Sierra Club. A summary of the comments and the TCEQ response is provided as part of this SIP revision in the Response to Comments.

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 through 2014, with much of the decreases occurring from 2007 through 2014. 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 1997 annual $PM_{2.5}$ NAAQS and the 1997 eight-hour ozone NAAQS and was previously included under the Clean Air Interstate Rule (CAIR) for the 1997 annual $PM_{2.5}$ NAAQS.[7] 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

[7] On July 28, 2015 the United States Court of Appeals for the District of Columbia (D.C. Circuit) ruled that the 2014 annual SO_2 budgets and the 2014 ozone season NO_X budgets for Texas were invalid because they required overcontrol of Texas emissions, and remanded these budgets back to the United States Environmental Protection Agency (EPA) without vacatur.

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, annually observes a number of occurrences of $PM_{2.5}$ from fires originating in Mexico and Central America and dust blown in from as far as Africa.

The 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 with an effective date of April 15, 2015. 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 nine areas in four states as nonattainment of the 2012 annual $PM_{2.5}$ NAAQS (EPA, 2014a).

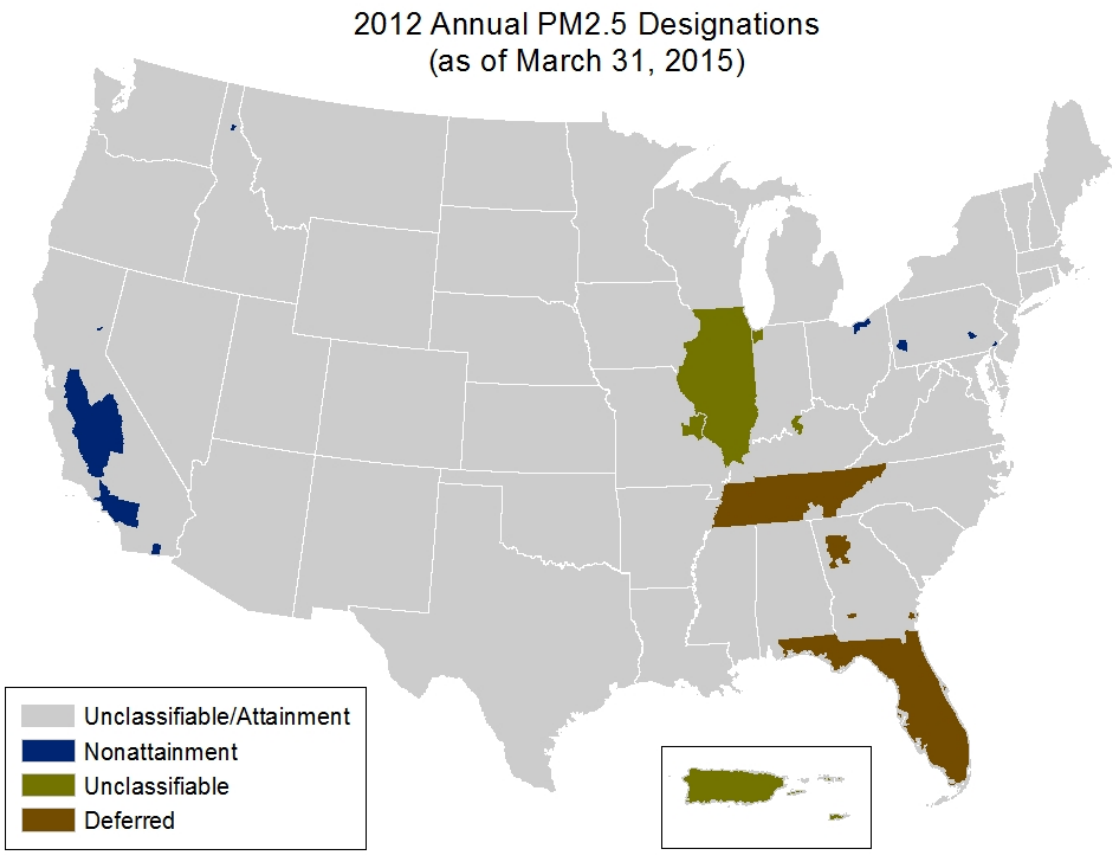


Figure 2-1: Areas Designated by the EPA as Nonattainment of the Annual $PM_{2.5}$ NAAQS (EPA, 2014a)

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 Pennsylvania, Ohio, and finally Idaho. The EPA designated one state, portions of three other states, and two territories 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 through 2013. These areas included the entire state of Illinois, including parts of Indiana and Missouri that border Illinois; the Louisville area that includes counties in both

Indiana and Kentucky; 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, 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.

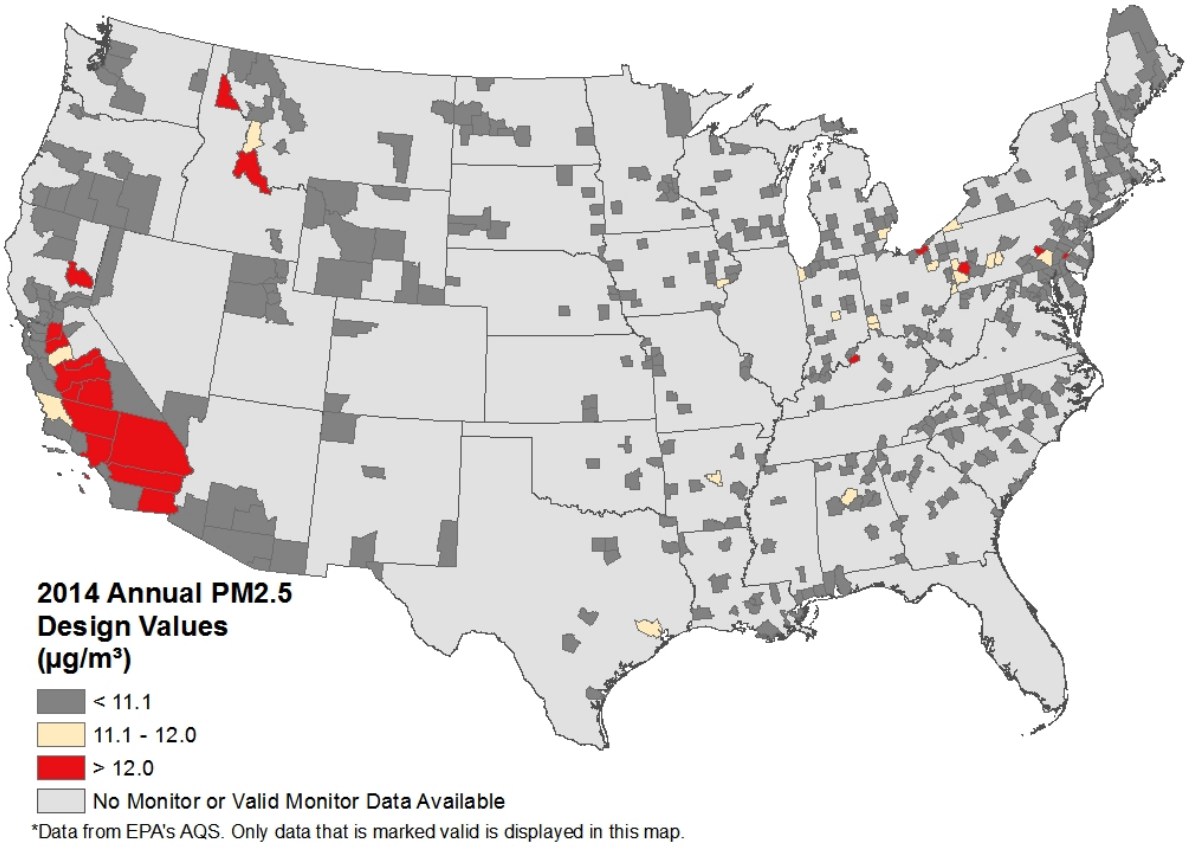


Figure 2-2: 2014 Annual $PM_{2.5}$ Design Values by County

Figure 2-2: *2014 Annual $PM_{2.5}$ Design Values by County* shows a map of the 2014 annual $PM_{2.5}$ design values by county. Only counties with a valid annual $PM_{2.5}$ design value in 2014 are filled in on the map. Counties colored in red represent counties with a 2014 annual design value equal

to or greater than 12.1 µg/m³, counties colored in light yellow represent counties with a 2014 annual $PM_{2.5}$ design value that ranges from 11.1 µg/m³ to 12.0 µg/m³, and counties colored in gray are counties with a 2014 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 July 7, 2015.

Only five states in the continental U.S. have valid 2014 design values above the annual $PM_{2.5}$ NAAQS; California, Ohio, Pennsylvania, Kentucky, and Idaho. Of those five states, only 19 counties were above the annual $PM_{2.5}$ NAAQS in 2014, 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 22 U.S. counties, colored in light yellow on the map, that are within 1.0 µg/m³ of the annual $PM_{2.5}$ NAAQS. Only two of those counties are located within EPA Region 6, one in Texas (Harris County) 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 $PM_{2.5}$ Design Value Trends by County in Texas*.

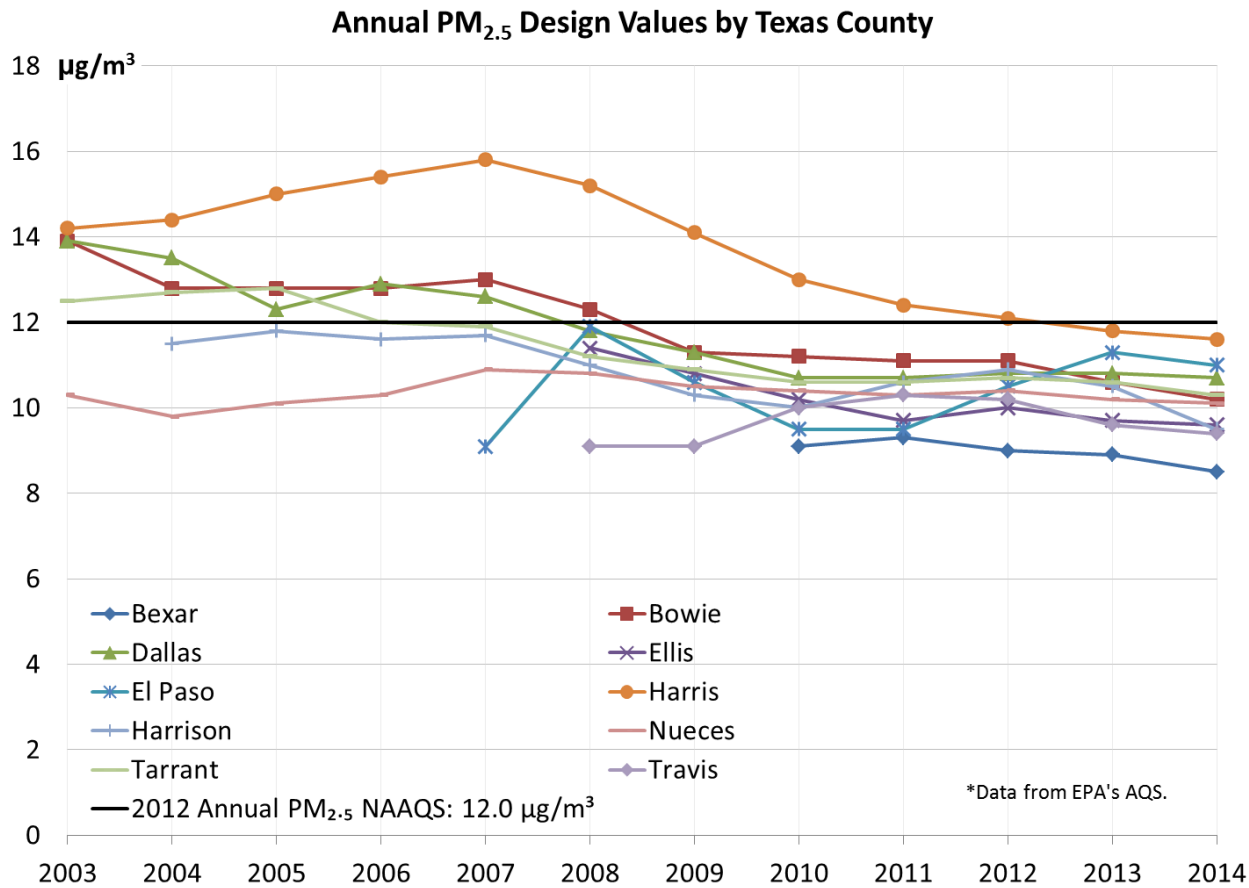


Figure 2-3: Annual $PM_{2.5}$ Design Value Trends by County in Texas

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 one county in Texas, Harris County, has an annual $PM_{2.5}$ design values above 11.0 µg/m³. El Paso County has the second highest annual $PM_{2.5}$ design value, which is right at 11.0 µg/m³. Harris County has had a steady decrease in design values since 2007; however, El Paso County showed an increase from 2011 through 2013 before decreasing again in 2014.

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. Figure 2-4: *Annual Average $PM_{2.5}$ Trends in Harris County* shows decreases in annual average $PM_{2.5}$ at all monitors located in Harris County. From 2003 through 2014, annual average $PM_{2.5}$ decreased 20% at Aldine, 19% at Baytown, and 21% at Clinton, the monitor with the highest $PM_{2.5}$ concentrations.

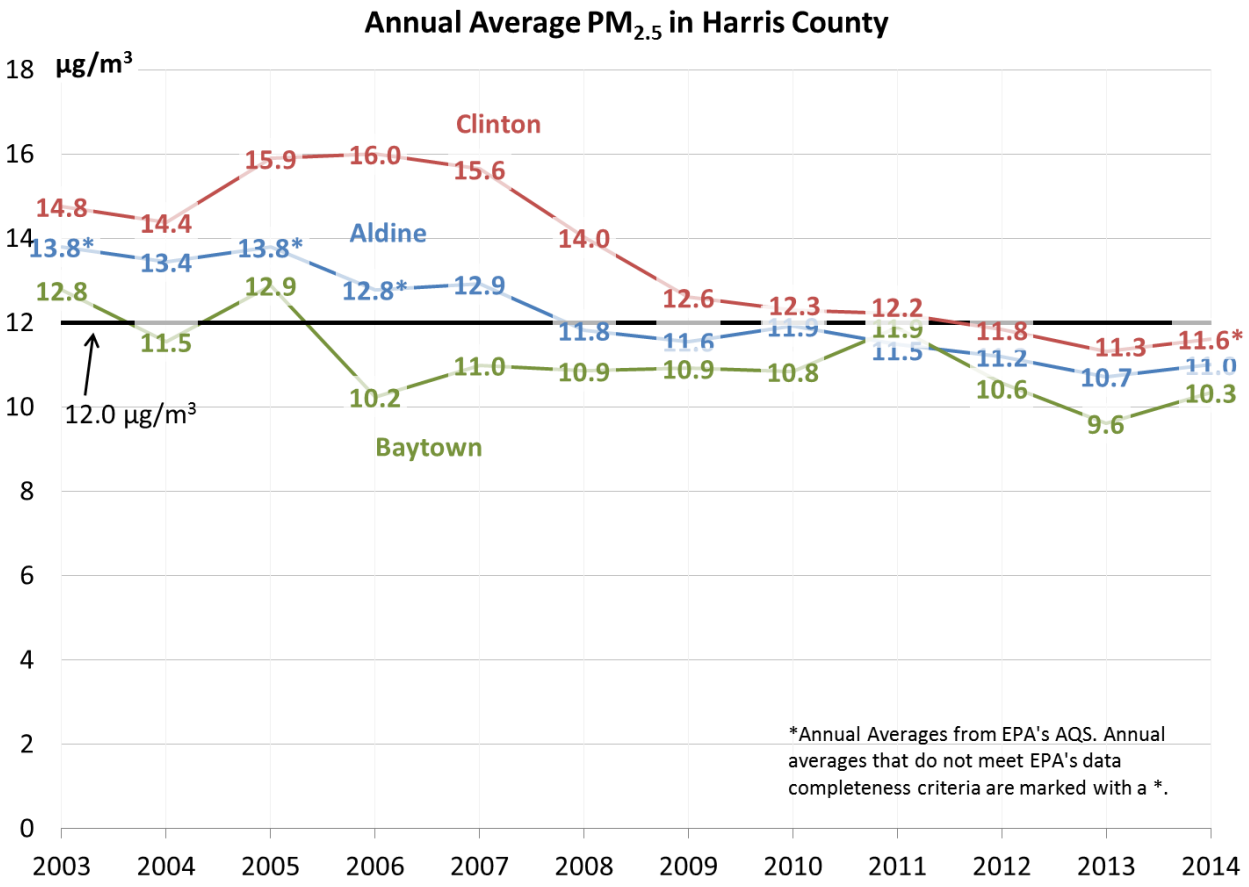


Figure 2-4: Annual Average $PM_{2.5}$ Trends in Harris County

Annual average $PM_{2.5}$ trends in El Paso County are displayed in Figure 2-5: *Annual Average $PM_{2.5}$ 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

the increase is due to high levels of annual average $PM_{2.5}$ that occurred in 2011 and in 2012.[8] The high levels of annual average $PM_{2.5}$ dropped in 2013 and in 2014. Overall, the trends in annual average concentrations at both monitors in El Paso have been decreasing with a 15% drop in annual average $PM_{2.5}$ at UTEP from 2005 through 2014 and a 14% drop in annual average $PM_{2.5}$ at Chamizal from 2006 through 2014.

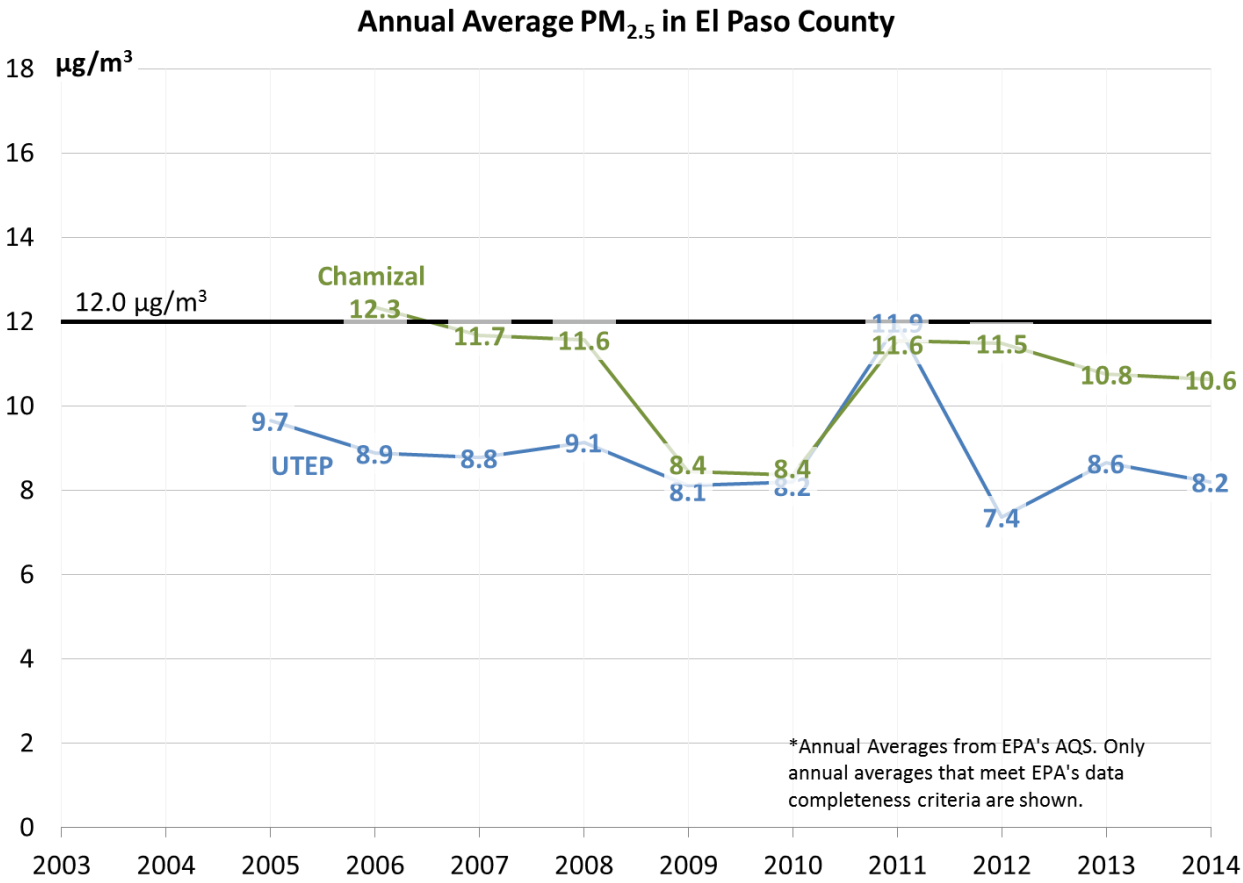


Figure 2-5: Annual Average $PM_{2.5}$ Trends in El Paso County

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 $PM_{2.5}$ Design Value Trends in Areas Designated as Nonattainment by the EPA*. The percent change in annual $PM_{2.5}$ design values from 2003 through 2014 are listed in Table 2-1: *Percent Change in Annual $PM_{2.5}$ Design Values*. Most areas have experienced large decreases in $PM_{2.5}$ concentrations; however, four

[8] The Texas Commission on Environmental Quality (TCEQ) submitted an exceptional event demonstration for El Paso to the EPA on December 12, 2013. The demonstration documented ten days in 2011 and 2012 where $PM_{2.5}$ levels were high due to high wind regional dust blowing events. In a letter to the TCEQ dated July 7, 2015, the EPA concurred with eight of the 10 proposed exceptional events.

areas saw an increase in $PM_{2.5}$, West Silver Valley, ID, Imperial County, CA, Plumas County, CA, and Lebanon County, PA. Note that Texas is unlikely to affect the air in areas such as California and Idaho because, in general, transport winds in the mid-latitudes flow west to east.

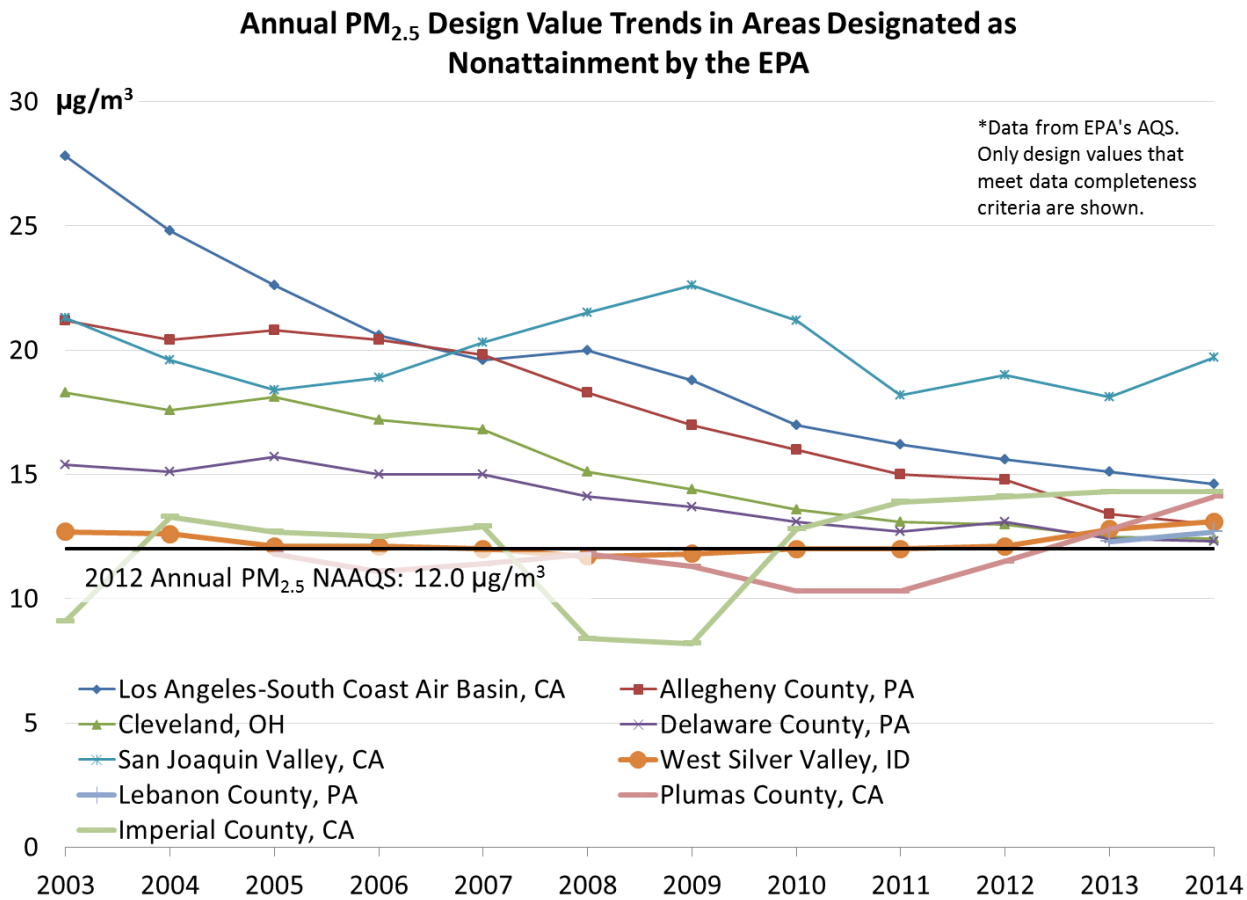


Figure 2-6: Annual $PM_{2.5}$ Design Value Trends in Areas Designated as Nonattainment by the EPA

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

EPA Designated Nonattainment Area	Percent Change 2003 through 2014
Los Angeles-South Coast Air Basin, CA	-47
Allegheny County, PA	-39
Cleveland, OH	-32
Delaware County, PA	-20
San Joaquin Valley, CA	-8
West Silver Valley, ID	3
Lebanon County, PA**	3

EPA Designated Nonattainment Area	Percent Change 2003 through 2014
Plumas County, CA*	19
Imperial County, CA	53

*Indicates that the area did not have data in 2003; therefore, percent change was calculated from the first year of data (2005) through 2014.
**Indicates that the area only had data in 2013; therefore, percent change was calculated from the first year of data (2013) through 2014.

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 $PM_{2.5}$ 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 µg/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.

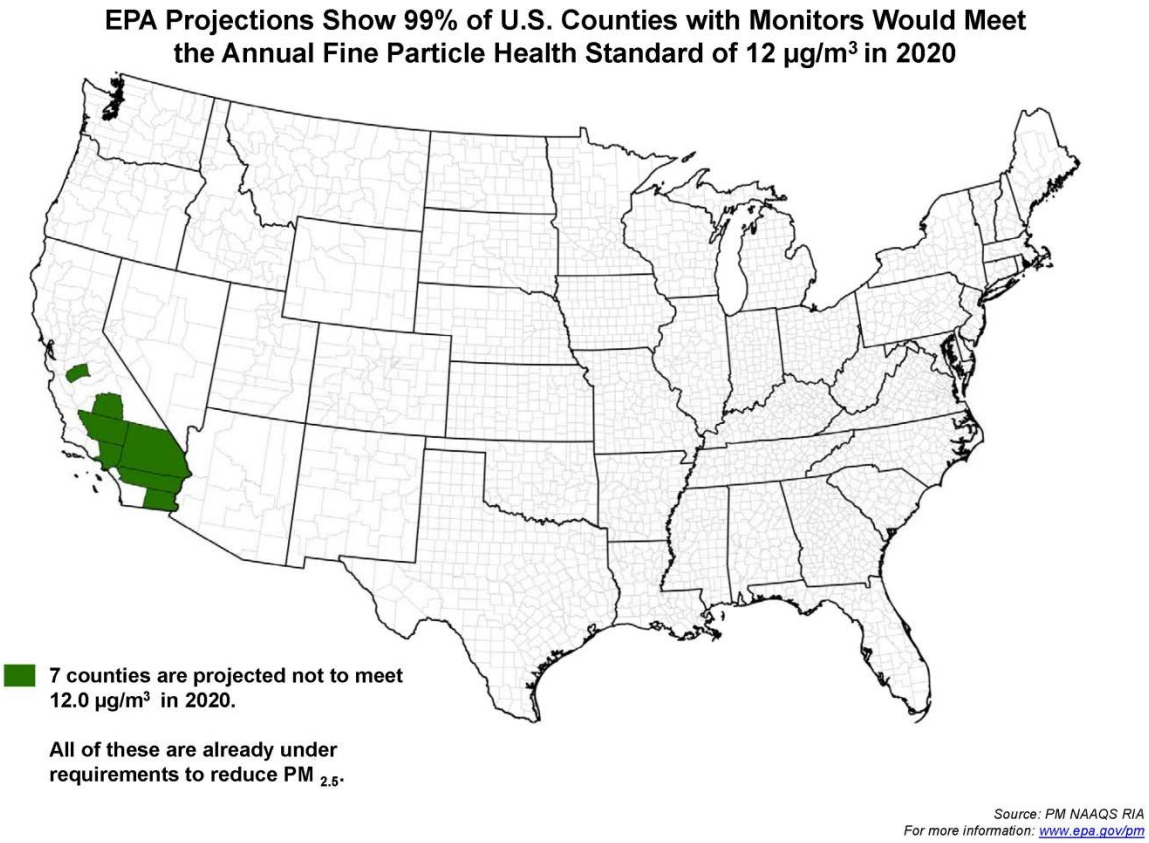


Figure 2-7: Annual $PM_{2.5}$ Design Values Projected for 2020 (EPA, 2014b)

2.2.1.2 Monitoring Sites

In 2014, there were 65 $PM_{2.5}$ monitors located within EPA Region 6. The location of monitors with valid 2014 annual $PM_{2.5}$ design values were displayed in the map in Figure 2-2. 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, 21, in Region 6. Louisiana has 15 monitors, Arkansas and Oklahoma each have 11 monitors, and New Mexico has seven monitors. Annual design values from both 2013 and 2014 are shown in the table. All but one monitor in EPA Region 6 had a lower annual design value in 2014 compared to 2013. The one monitor that did not have a lower design value had no change in its annual design value from 2013 to 2014. The decrease in design values throughout EPA Region 6 is further evidence that Texas will not interfere with attainment or maintenance of the 2012 annual $PM_{2.5}$ NAAQS in other states.

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/m^3)	2014 Annual Design Value (µg/m^3)
Arkansas	Arkansas	050010011	Stuttgart	10.1	9.5
Arkansas	Ashley	050030005	Crossett	10.1	9.2
Arkansas	Crittenden	050350005	Marion	10.6	9.8
Arkansas	Garland	050510003	Hot Springs	10.5	9.7
Arkansas	Jackson	050670001	Newport	9.6	9.3
Arkansas	Polk	051130002	Mena	10.5	9.8
Arkansas	Pulaski	051190007	Parr	11.2	10.6
Arkansas	Pulaski	051191004	Adams Field	11.1	10.4
Arkansas	Pulaski	051191008	Doyle Springs Road	11.7	11.1
Arkansas	Union	051390006	El Dorado	10.7	9.8
Arkansas	Washington	051430005	Springdale	10.2	9.2
Louisiana	Caddo	220170008	Shreveport / Calumet	11.6	10.9
Louisiana	Calcasieu	220190009	Vinton	8.1	7.4
Louisiana	Calcasieu	220190010	McNesse	8.4	7.9
Louisiana	East Baton Rouge	220330009	Capitol	9.4	9.0
Louisiana	Iberville	220470005	Geismar	9.4	9.1
Louisiana	Iberville	220470009	Bayou Plaquemine	8.5	8.0
Louisiana	Jefferson	220511001	Kenner	8.2	7.8
Louisiana	Jefferson	220512001	Marrero	8.7	8.2
Louisiana	Lafayette	220550007	Lafayette / USGS	8.5	8.2
Louisiana	Ouachita	220730004	Monroe / Airport	8.9	8.3
Louisiana	Rapides	220790002	Alexandria	8.1	7.8
Louisiana	St. Bernard	220870007	Chalmette Vista	9.7	9.4
Louisiana	Tangipahoa	221050001	Hammond	8.5	8.0
Louisiana	Terrebonne	221090001	Houma	7.8	7.4
Louisiana	West Baton Rouge	221210001	Port Allen	9.9	9.2
New Mexico	Bernalillo	350010023	Del Norte High School	6.7	6.5

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value (µg/m^3)	2014 Annual Design Value (µg/m^3)
New Mexico	Bernalillo	350010024	South East Heights	6.7	6.3
New Mexico	Bernalillo	350010029	South Valley		
New Mexico	Dona Ana	350130025	Las Cruces District Office of NM Environment Dept.	6.3	6.2
New Mexico	Lea	350250008	Hobbs-Jefferson	8.4	7.8
New Mexico	San Juan	350450019	Farmington Environment Department Office	4.7	4.5
New Mexico	Santa Fe	350490020		4.9	
Oklahoma	Cleveland	400270049	Moore Water Tower		
Oklahoma	Comanche	400310651	Lawton North		
Oklahoma		400430860			
Oklahoma	Kay	400710604	Ponca City Salvation Army		
Oklahoma	Kay	400719030	Kanza Travel Plaza		
Oklahoma	Love	400850300	Weather Station – Burnyeyville Mesonet Site		
Oklahoma	Oklahoma	401090035	Central Fire Station	9.7	9.3
Oklahoma	Oklahoma	401091037	OKC North	9.5	9.2
Oklahoma	Pittsburg	401210415	McAlester Municipal Airport	10.3	9.7
Oklahoma	Sequoyah	401359021		10.5	9.7
Oklahoma	Tulsa	401430174	Tulsa South		
Oklahoma	Tulsa	401431127	North Tulsa - Fire Station #24	10.1	9.3
Texas	Bexar	480290032	San Antonio Northwest	8.9	8.5
Texas	Bexar	480290059	Calaveras Lake	8.6	8.4
Texas	Bowie	480370004	Texarkana	10.6	10.2
Texas	Dallas	481130050	Convention Center	10.8	10.7
Texas	Dallas	481130069	Dallas Hinton	10.0	9.7
Texas	Ellis	481390016	Midlothian OFW	9.7	9.6
Texas	El Paso	481410037	El Paso UTEP	9.3	8.1
Texas	El Paso	481410044	El Paso Chamizal	11.3	11.0
Texas	Galveston	481671034	Galveston 99th Street		
Texas	Harris	482010024	Houston Aldine	11.1	11.0
Texas	Harris	482010058	Baytown	10.7	10.2
Texas	Harris	482011035	Clinton	11.8	11.6

State	County/Parish Name	AIRS Number	Site Name	2013 Annual Design Value (µg/m^3)	2014 Annual Design Value (µg/m^3)
Texas	Harris	482011039	Houston Deer Park #2		
Texas	Harrison	482030002	Karnack	10.5	9.5
Texas	Hidalgo	482150043	Mission		
Texas	Nueces	483550032	Corpus Christi Huisache	10.2	10.1
Texas	Nueces	483550034	Dona Park	9.4	9.3
Texas	Tarrant	484391002	Fort Worth Northwest	10.5	10.3
Texas	Tarrant	484391006	Haws Athletic Center	10.6	10.3
Texas	Travis	484530020	Austin Audubon Society	7.8	7.8
Texas	Travis	484530021	Austin Webberville Rd	9.6	9.4

*A blank cell indicates that there is no valid 2013 or 2014 annual $PM_{2.5}$ design value at that site.

2.2.2 Statewide Emissions Reductions

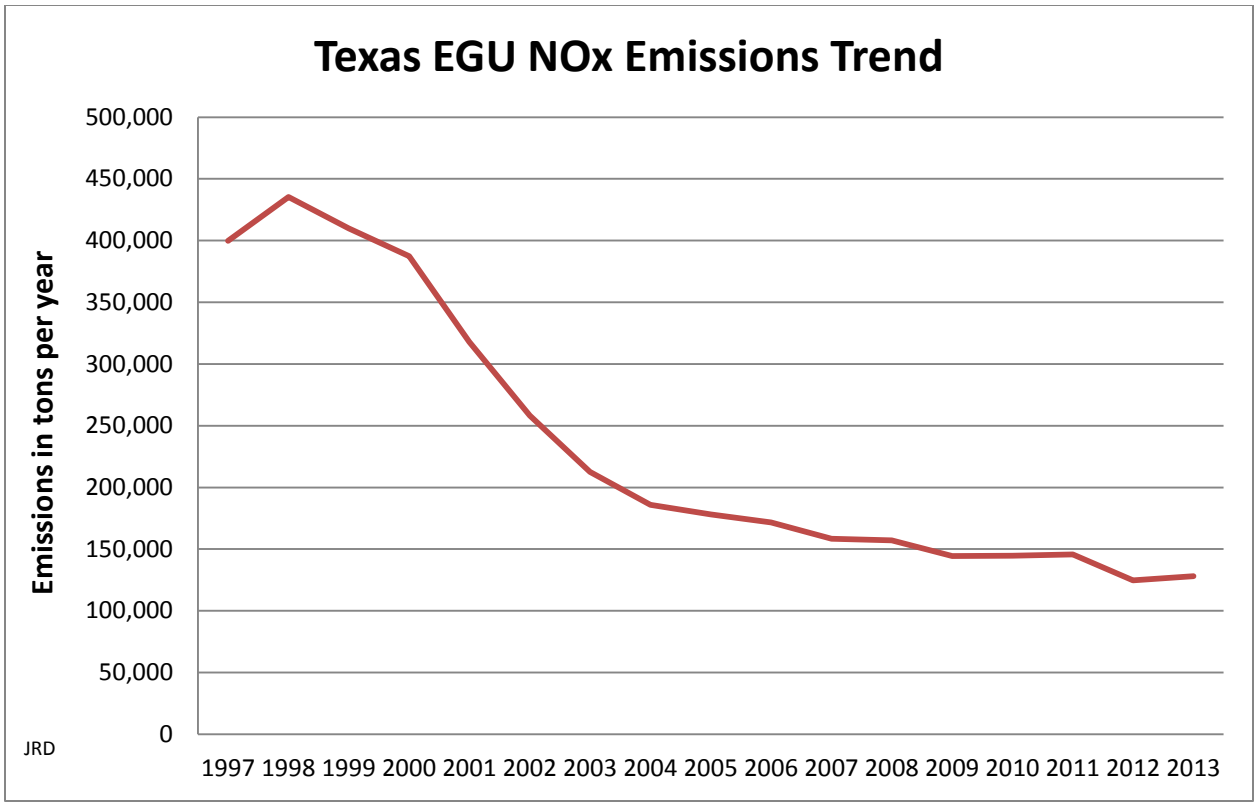
In the 2014 Five-Year Regional Haze SIP Revision (https://www.tceq.texas.gov/assets/public/implementation/air/sip/haze/13012SIP_ado.pdf#page=77), Section 4.7: *Statewide Emissions Data Comparison*, Texas analyzed changes in emissions of SO_2, NO_X, and PM from sources within the state and determined 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 2.2.3.2: *Electric Utility Generation in Ozone Nonattainment Areas*, Section 2.2.3.3: *Electric Utility Generation in East and Central Texas*, and Section 2.2.3.4: *SB 7, 76th Texas Legislature* of this SIP revision.

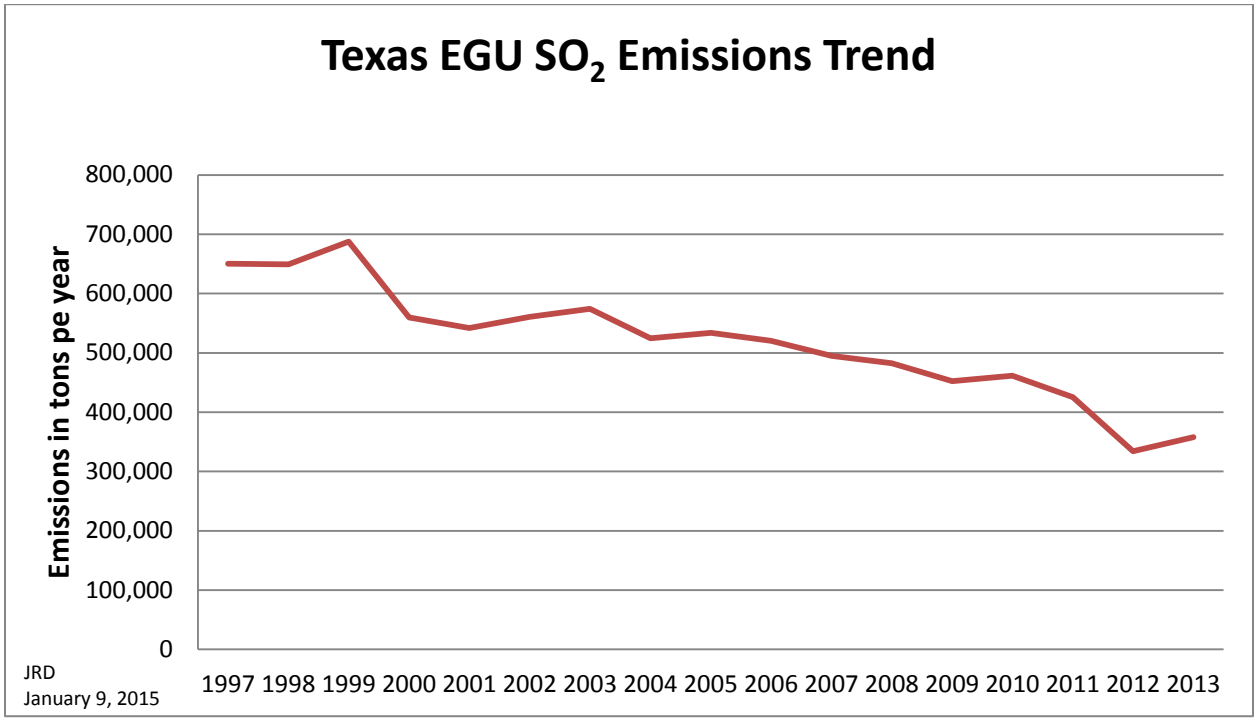
Texas was included in CAIR for the 1997 $PM_{2.5}$ NAAQS. In addition to the annual NO_X reductions from the CAIR program, in 1999 the state implemented a strategy in the eastern part of Texas to reduce NO_X emissions from EGUs. The control strategies specific to EGUs include:

- 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.[9] 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 D.C. Circuit Court 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. On July 28, 2015 the D.C. Circuit Court ruled that the 2014 annual SO_2 budgets and the 2014 ozone season NO_X budgets for Texas were invalid because they required overcontrol of Texas emissions, and remanded these budgets back to the EPA without vacatur.

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

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-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 2.2.4.1: *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. This section 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 30 TAC §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 1.0 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.

The photochemical modeling for the HGB Attainment Demonstration SIP Revision for the 1997 Eight-Hour Ozone Standard adopted March 10, 2010 included 120.0 tons per day (tpd) of NO_X emissions in 2018 based on the October 2009 MECT cap. The modeled MECT cap is a function of the actual allowance allocations, allowable allowance allocations, and the conversion of emission reduction credits to allowance allocations. The projected 2018 MECT cap, as of May 2015 is 109.6 tpd of NO_X emissions, which is a reduction of 10.4 tpd of NO_X emissions from the modeled MECT cap. This reduction can be attributed to facilities revising allowance allocations based on permit limits to allocations based on actual operating data since typically most facilities operate below their permit limits. Further MECT cap reductions are expected in the future due to sources that have yet to convert their allowable allowances into actual allowances.

2.2.4.2 Cement Kilns

The rules in 30 TAC Chapter 117, Subchapter E, Division 2 limit NO_X emissions from cement kilns in Bexar, Comal, Ellis, Hays, and McLennan Counties. Affected sources in Ellis County were required to comply with the rules by May 1, 2003, and affected kilns in the other counties were required to comply by May 1, 2005. Cement kilns in Bexar, Comal, Hays, and McLennan Counties have emission limits based on the type of kiln. Long wet kilns are limited to 6.0 pounds of NO_X per ton of cement clinker produced (lb/ton of clinker), long dry kilns to 5.1 lb/ton of clinker, preheater kilns are limited to 3.8 lb/ton of clinker, and preheater-precalciner or precalciner kilns are limited to 2.8 lb/ton of clinker. These kilns could alternatively install a low-NO_X burner and use mid-kiln firing, some other equivalent emission reduction, or a 30% reduction from 1996 levels if approved by the TCEQ and the EPA.

Cement kilns in Ellis County are also required to comply with a site-wide source cap during the ozone season. The cap is based on their clinker production during 2003, 2004, and 2005 plus one standard deviation multiplied by an emission factor. The emission factor is 1.7 lb/ton of clinker for dry kilns and 3.4 lb/ton of clinker for wet kilns. Compliance with the cap is determined on a 30-day rolling average of the daily NO_X emission. Emissions from any kilns installed after 2005 must be offset with emission reductions at the site or through emission reduction credits. Individual kilns may exceed the cap if the entire site kiln NO_X emissions are below the cap. 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.

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 area; 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 repair or remove older, higher emitting vehicles from use 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 16 counties currently participating in the LIRAP are Brazoria, Fort Bend, Galveston, Harris, Montgomery, Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, Travis, and Williamson Counties.

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 Bin certification vehicles. The program provides $3,500 for a replacement hybrid, electric, natural gas, and federal Tier 2, Bin 3 or cleaner Bin certification 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 must have failed an emissions test. From December 12, 2007 through May 31, 2015, the program has retired and replaced 54,452 vehicles at a cost of $163,538,313. During the same period, an additional 37,403 vehicles have had emissions-related repairs at a cost of $19,805,305.

The total retirement/replacement and repair expenditure from December 12, 2007 through May 31, 2015 is $183,343,618. 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. SB 1, General Appropriations Bill, 83rd Texas Legislature 2013, Regular Session, continued the program with an appropriation of $7.04 million for FY 2014 and FY 2015 for use in the 16 participating counties. HB 1, General Appropriations Bill, 84th Texas Legislature 2015, increased the appropriation to $43.5 million per year for fiscal years (FY) 2016 and FY 2017 for use in the 16 participating counties. 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 exhaust emissions contain PM, reductions may co-benefit decreases of PM. The TxLED program 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 2-10: *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.

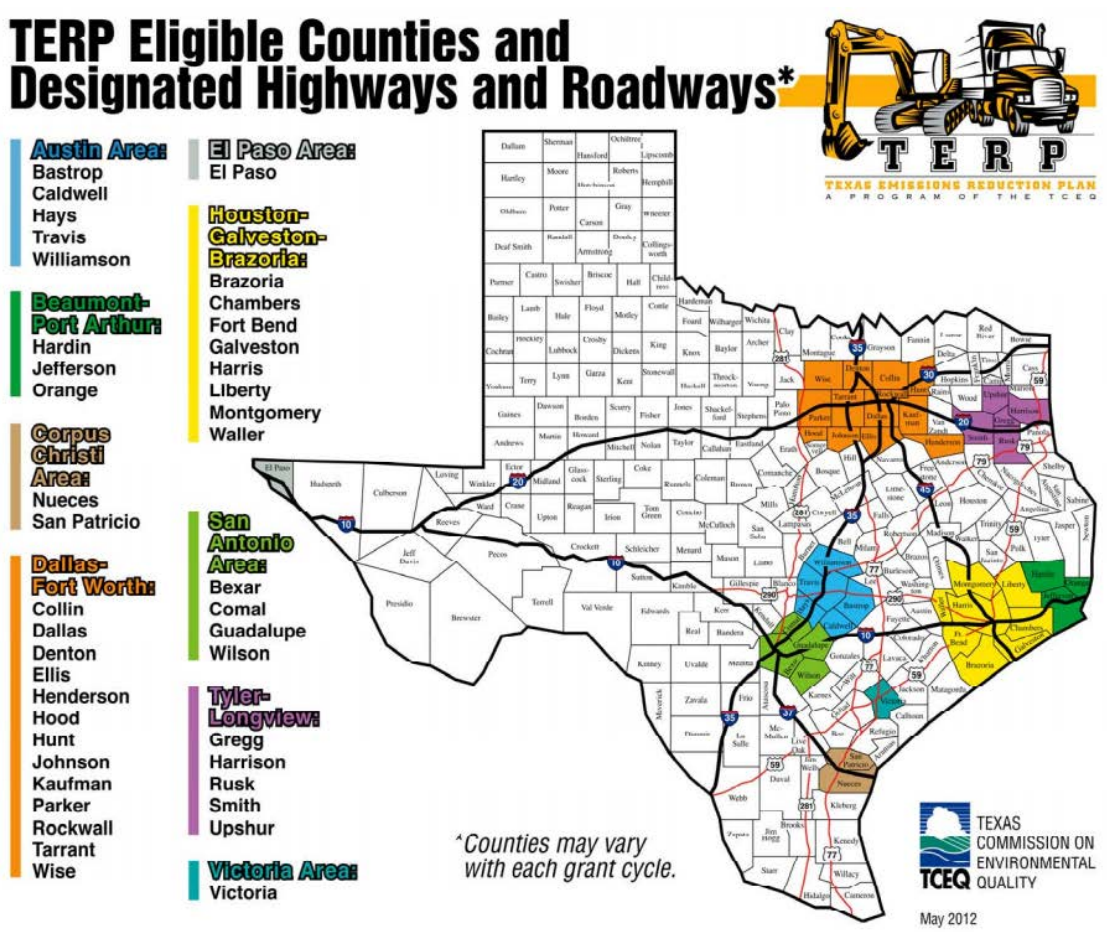


Figure 2-10: TERP Eligible Counties and Designated Highways and Roadways

From FY 2002 through FY 2015, the TCEQ issued over $968 million under the primary TERP Diesel Emissions Reduction Incentive (DERI) Program, representing a total of 10,237 projects, or 16,731 individual pieces of equipment and/or vehicles. From FY 2002 through FY 2015, this level of activity represents a projected reduction of 168,289 tons of NO_X. Table 2-3: TERP DERI Projects Funded from FY 2002 through FY 2015 by Emission Source categorizes emission sources into five types and estimates 51.8 tpd of NO_X reduced in FY 2015. The emissions reductions are estimated based on what the projects funded through FY 2015 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 2-3: TERP DERI Projects Funded from FY 2002 through FY 2015 by Emission Source

Emission Source	Number of Projects	Total NO_X Reduced (tons)	Grant Amount (dollars)	Cost Per Ton (dollars)	Estimated NO_X Reduced 2015 (tpd)
Non-Road	5,626	43,421	$323,839,572	$,7458	16.1
On-Road	4,401	55,135	$372,702,842	$6,760	19.0
Marine	80	14,743	$46,638,200	$3,163	3.7
Stationary	80	4,344	$13,593,253	$3,129	1.6
Locomotive	50	50,646	$211,497,730	$4,176	11.3
Totals	10,237	168,289	$968,271,597	$5,754	51.8

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.

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, revising 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 provided 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. This program expired August 31, 2015.
- 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 2-4: *TERP Funding* shows the TERP funding allocations to the TCEQ for FY 2012 through FY 2015.

Table 2-4: 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

HB 1, General Appropriations Bill, 84th Texas Legislature, 2015, appropriated $118.1 million per year for implementation of the TERP in FY 2016 and 2017. This represents an increase of $40.5 million per year over the appropriation amount in FY 2014 and 2015. The additional funding will result in more grant projects that result in NO_X and PM reductions in the eligible TERP areas.

2.2.6.1 NTIG Program

From August 2010 through FY 2015 the program funded one thermal energy storage project, two electricity storage projects, and one new technology project for funding totaling approximately $6.2 million.

2.2.6.2 TNGVGP

From FY 2011 through FY 2015, 102 projects to replace 994 vehicles were funded for over $47.3 million. These projects are estimated to reduce 1,650 tons of NO_X.

2.2.6.3 CTT

The CTT Program was implemented in FY 2012. Through FY 2015, the TCEQ issued 37 grants for natural gas fueling stations located in the CTT for $11.6 million. 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 2015, the TCEQ issued 22 grants for alternative fueling stations in the nonattainment areas totaling approximately $9.3 million.

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 FY 2005 through FY 2015, the TCSB Program funded the retrofit of 7,277 school buses, for a total funding amount of approximately $29 million, including approximately $4.3 million in federal funds awarded by the EPA under the State Clean Diesel program.

2.2.6.6 DERI Program

From FY 2001 through FY 2015, the TCEQ awarded approximately 10,237 grants under the DERI Program for $968,271,597. This total included 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 168,289 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.

2.2.6.7 TCFP

From FY 2011 through FY 2015 the TCEQ awarded 16 grants for $31,411,226 for replacement of diesel vehicles with alternative fuel vehicles. These grants are estimated to reduce NO_X emissions by a total of 401 tons.

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. Nine projects for replacement of 47 vehicles were awarded funding totaling $3,953,924. These grants are estimated to reduce NO_X emissions by a total of 233 tons.

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. The statutory authority for this program expired on August 31, 2015. Over the two years that the program was in effect, the program provided 1,896 rebate grants for the purchase or lease of an electric vehicle for funding of approximately $4.1 million. The program provided 196 rebate grants for the purchase or lease of a compressed natural gas or liquefied petroleum gas vehicle for funding of approximately $486,250.

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. Texas leads the nation in renewable energy generation from wind. As of December 2014, Texas has 14,098 megawatts (MW) of installed wind generation capacity[10]; more than double that of California, the state with the next highest amount of installed wind generation capacity. Texas' total net electrical generation from renewable wind generators for 2014 is estimated to be approximately 39 million megawatt-hours (MWh)[11], approximately 22% of the total wind net electrical generation for the U.S. 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

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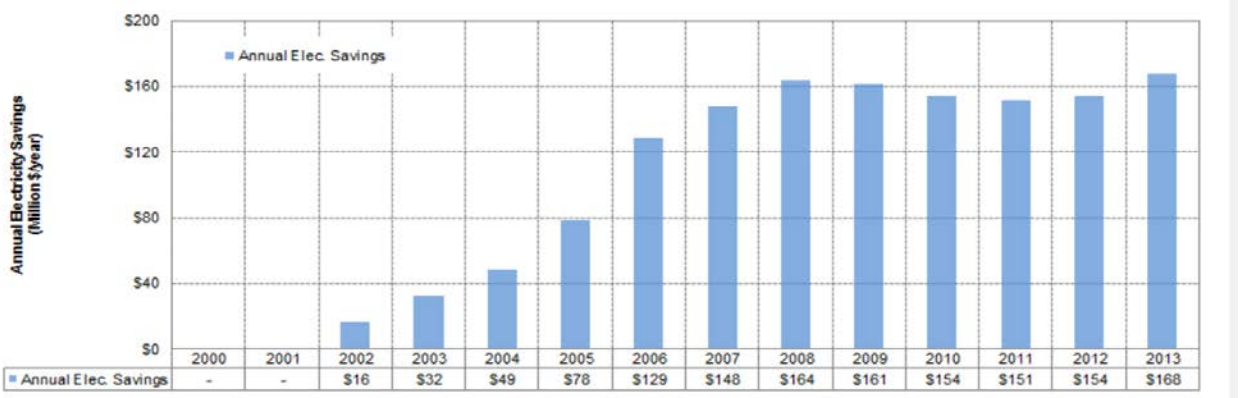
[10] U.S. Department of Energy, National Renewable Energy Laboratory, http://apps2.eere.energy.gov/wind/windexchange/wind_installed_capacity.asp

[11] U.S. Department of Energy, Energy Information Administration, Form EIA-923 data, http://www.eia.gov/electricity/data/eia923/

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).

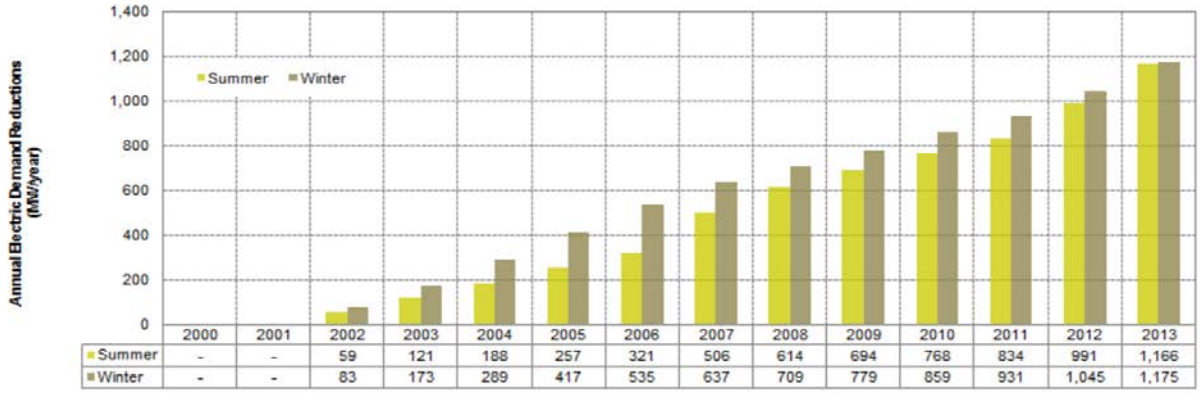
The total increased costs are estimated to be $1.06 billion. Figure 2-11: *Annual Statewide Electricity Savings from the IECC Code Adoption for New Single-Family Residences in Texas: 2002 through 2013* and Figure 2-12: *Annual Statewide Electric Demand Reductions from the IECC Code Adoption for New Single-Family Residences in Texas: 2002 through 2013* show the annual statewide electricity savings and demand reductions. Figure 2-13: *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

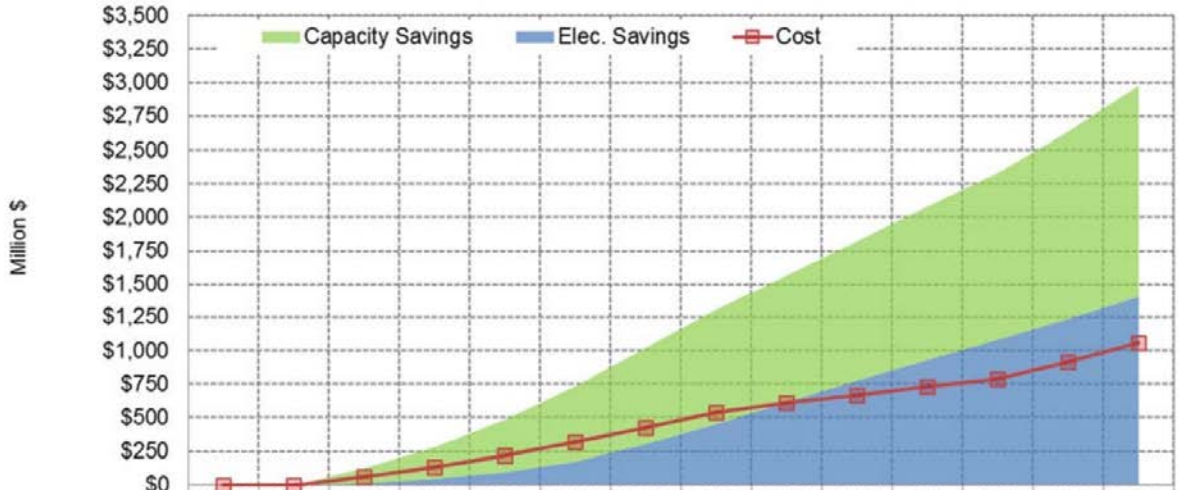
Figure 2-11: Annual Statewide Electricity Savings from the IECC Code Adoption for New Single-Family Residences in Texas: 2002 through 2013



	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 2-12: 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 2-13: Cumulative Increased Costs, Statewide Electricity and Electric Demand Savings Associated with the IECC Code Adoption for Single-Family Residences in Texas: 2002 through 2013

More recently, in 2015, 84th Regular Session, the Texas Legislature adopted HB 1736 to update THSC §388.003 to adopt, effective September 1, 2016, the energy efficiency chapter of the International Residential Code as it existed on May 1, 2015. HB 1736 also established a schedule by which the State Energy Conservation Office could adopt updated editions of the International Residential Code in the future, not more often than once every six years.

2.2.8 SO_2 Emissions Reductions Resulting from Facility 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 2-5: *Texas SO_2 Emissions Reductions Resulting from Facility Shutdowns*. Emission reductions are based on 2009 actual emissions reported to the TCEQ. The TCEQ considered data from 2009 through 2014. The TCEQ excluded facilities 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 2-5: Texas SO_2 Emissions Reductions Resulting from Facility 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 facilities 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. "Area Designations for the 2012 Annual Fine Particle ($PM_{2.5}$) Standard," last modified April 7, 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 2014, with much of the decreases occurring from 2007 to 2014. 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.

RESPONSE TO COMMENTS RECEIVED REGARDING THE 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 Texas Commission on Environmental Quality (TCEQ or commission) offered a public hearing for this SIP revision in Austin on June 16, 2015 at 2:00 p.m. at the commission's central office. The public hearing was not opened as no one signed in to provide comments.

The comment period opened May 15, 2015 and closed June 22, 2015. The TCEQ received written comments from the Sierra Club.

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TRANSPORT ANALYSIS

The Sierra Club commented that PM can be transported by long distances and that Texas limited its transport analysis to surrounding states instead of considering Texas' impact on all other states.

The proposed SIP revision analyzed design values for every state within the continental United States (U.S.) as well as trends for all designated nonattainment areas, not just those closest to Texas. The analysis found very few states (only four) with design values above the NAAQS. The trend analysis focused on the areas in those four states that are designated as nonattainment of the NAAQS. Design value trend analysis was not based on a state's proximity to Texas. No changes were made in response to this comment.

The Sierra Club commented that the analysis of $PM_{2.5}$ design value trends at monitors within Texas is not sufficient to determine whether Texas contributes to nonattainment in other areas. The Sierra Club also commented that not just PM but also PM precursors transported from Texas can affect other states.

The TCEQ's analysis of annual $PM_{2.5}$ design value trends in Texas was just one analysis used to determine whether Texas affects $PM_{2.5}$ design values in other states. Decreasing trends in design values indicate that Texas has declining levels of $PM_{2.5}$ available for transport out of state, and therefore is less likely to interfere with attainment or maintenance of the NAAQS in other areas. Section 2.2.2: *Statewide Emissions Reductions* of the proposed SIP revision also referred to the 2014 Five-Year Regional Haze SIP Revision, which shows declining trends in PM as well as $PM_{2.5}$ precursors such as sulfur dioxide (SO_2) and nitrogen oxides (NO_X).

The Sierra Club commented that the analysis of $PM_{2.5}$ design value trends in nonattainment areas is not sufficient to demonstrate whether Texas is contributing to nonattainment in these areas or whether Texas is interfering with maintenance of the NAAQS in other areas that may be near nonattainment.

Design value trends in nonattainment areas was only one part of the analysis the TCEQ used to determine if Texas is interfering with attainment or maintenance of the NAAQS in other areas. This specific analysis was used to determine if Texas contributes to nonattainment in any other state, which was done by looking at areas of the U.S. that had $PM_{2.5}$ attainment issues. Decreases of $PM_{2.5}$ observed in nonattainment areas show that those areas are not likely to exceed the NAAQS in the future and therefore not likely to have issues with attainment of the NAAQS. The nonattainment area design-value trend analysis was not used to determine if Texas interfered with maintenance; the TCEQ used design value maps as well as the EPA's 2020 projections to look at the possibility of Texas interfering with maintenance of the NAAQS. No changes were made in response to this comment.

The Sierra Club commented that using the U.S. Environmental Protection Agency's (EPA) projections for 2020 nonattainment areas does not demonstrate that Texas will not affect other states' attainment or maintenance of the NAAQS. The Sierra Club proposed that if this analysis is used that Texas must identify the tonnage reductions assumed by the EPA in this analysis.

The commission stands by its use of the EPA's projections for the 2020 $PM_{2.5}$ nonattainment areas to further support the transport analysis provided in the proposed SIP revision. If the EPA projects all areas with the exception of California to be attainment for $PM_{2.5}$ in 2020, then Texas would not be interfering with attainment in any other state. Texas is unlikely to significantly affect the air quality in California due to west to east flow of winds across the U.S. The map of the EPA's 2020 projections (Figure 2-7 of the proposed SIP revision) was used to illustrate the decline in $PM_{2.5}$ across the U.S.; the purpose of the map was not to determine reductions needed to attain the $PM_{2.5}$ NAAQS. Texas is not obligated to make emission reductions based on the data used in the map. The commission cannot verify the exact tonnage reductions assumed by the EPA in developing the 2020 projections and Texas is not relying on these assumed reductions in order to satisfy good neighbor requirements for the 2012 $PM_{2.5}$ NAAQS. The analysis of the EPA's 2020 projections was included in the proposed SIP revision to further support the transport analysis for Texas and was not the only analysis used to demonstrate that Texas does not contribute to nonattainment or interfere with maintenance of the NAAQS in another state. No changes have been made in response to this comment.

The Sierra Club commented that the TCEQ did not provide an adequate technical analysis in the proposed SIP revision to address interstate transport of $PM_{2.5}$ and that the lack of specific EPA transport guidance for the 2012 primary annual $PM_{2.5}$ NAAQS does not excuse the TCEQ from providing a meaningful analysis.

The commission agrees that an adequate transport analysis is required despite the lack of EPA transport guidance specific to the 2012 primary annual $PM_{2.5}$ NAAQS. The proposed SIP revision noted that, 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 proceeded with the proposed SIP revision, despite the lack of EPA guidance, to meet the SIP submittal deadline and 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 of the Federal Clean Air Act (FCAA) for the 2012 $PM_{2.5}$ NAAQS was demonstrated in Chapter 2: *Required Control Strategy Elements* of the proposed SIP revision, revising Section VI: *Control Strategy* of the Texas SIP. Since proposal, the technical analysis in Chapter 2 has been updated to incorporate design values through 2014 and to account for concurrence of exceptional events by the EPA in July 2015. The commission believes that the technical analysis provided in this SIP revision adequately addresses the interstate transport requirements in the FCAA and supports the conclusion that Texas does not significantly contribute to nonattainment or interfere with maintenance of the 2012 $PM_{2.5}$ NAAQS in any other state.

POWER PLANT EMISSIONS

The Sierra Club commented that Texas power plants emit far more pollution than is typical on both a total volume basis and a rate basis, and, in particular, Texas power plants emit more SO_2 than any other state.

Sierra Club is correct that, as of 2012, Texas' total SO_2 mass emissions from power plants are more than any other state. However, Texas power plants also produce far more electricity than any other state. According to the U.S. Energy Information Administration, Texas' 2014 total net electrical generation from all generators in the electric power sector (including renewable and nuclear generators) was approximately 397 million megawatt-hours, approximately 75% more than the next highest state. Texas' large demand for electricity is the result of being the second most populous state in the nation and having a large industrial economy. Comparing one state's total mass emissions to other states without considering such factors misrepresents the actual emission performance of the power plants within that state.

The commission also disagrees with the Sierra Club's statement that Texas power plants emit far more pollution than is typical on a rate basis. In terms of overall NO_X emissions, Texas power plants are better controlled than most other states in the country. For the 48 states with power plants that report emissions data to the EPA's Clean Air Market Division (CAMD) database, the overall NO_X emission rate in 2014 was 0.134 pound per million British thermal units (lb/MMBtu). Texas' overall NO_X emission rate in 2014 was 0.079 lb/MMBtu, approximately 40% lower than the overall rate for all the states in the CAMD database. Considering only NO_X emissions from coal-fired units, Texas' overall NO_X emission rate in 2014 was 0.123 lb/MMBtu, which is approximately 33% less than the overall rate of 0.185 lb/MMBtu for the 43 states with coal-fired power plants in the CAMD database. With regard to SO_2 emissions, Texas' overall coal-fired power plant SO_2 emission rate of 0.439 lb/MMBtu in 2014 is approximately 18% higher than the overall value of 0.372 lb/MMBtu for all coal-fired power plants that report SO_2 emission data to CAMD. However, regardless of whether the average emission rate for Texas' power

plants is more or less than what Sierra Club might consider typical for power plants in other states, this factor alone does not justify imposing additional control requirements on power plants for the purposes of FCAA, Section 110(a)(2)(D)(i)(I). As discussed elsewhere in this response to comments document, a state's obligation to require emission reductions under FCAA, Section 110(a)(2)(D)(i)(I) is predicated on the impact of that state's emissions on downwind nonattainment and maintenance areas, not any particular control level for the sources within that state.

EMISSION REDUCTION MEASURES

The Sierra Club commented that the programs cited by the commission in the proposed SIP revision do not ensure that Texas will not contribute to nonattainment or interfere with maintenance in downwind states. Specifically, the Clean Air Interstate Rule (CAIR) and Cross-State Air Pollution Rule (CSAPR) were implemented to address the 1997 $PM_{2.5}$ NAAQS and were not necessarily sufficient to ensure there is no interference with the more stringent current standard. Sierra Club added that the commission did not explain whether power plants in Texas were expected to reduce emissions or purchase allowances under CSAPR and how this might impact pollution transport. Sierra Club also commented that some of the state programs referenced in the proposed SIP revision, such as the Chapter 117 East and Central Texas rules and Senate Bill 7 were implemented 10 years ago or more and do not represent ongoing reductions.

The fact that the measures included with this SIP revision were implemented for a prior NAAQS does not invalidate the use of these measures for satisfying FCAA, Section 110(a)(2)(D)(i)(I) for the purposes of the 2012 $PM_{2.5}$ NAAQS. Furthermore, FCAA, Section 110(a)(2)(D)(i)(I) does not require a state to make ongoing reductions. The FCAA states that a state's SIP must contain adequate provisions prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity with the state from emitting any air pollutant in amounts that will contribute significantly to nonattainment in, or interfere with maintenance by, any other state with regard to any such primary or secondary NAAQS. A state's obligation to implement any control measures under Section 110(a)(2)(D)(i)(I) is not initiated until emissions are shown to contribute significantly to nonattainment or interfere with maintenance of a NAAQS in any other state. This interpretation is consistent with the EPA's interpretation of Section 110(a)(2)(D)(i)(I). In adopting CSAPR, the EPA did not apply the control requirements to all states, only those states that the EPA considered to be contributing significantly to nonattainment or interfering with maintenance in another state. As discussed elsewhere in this response to comments document, the TCEQ's analysis of the available data indicates that emissions from sources in Texas are neither contributing significantly to nonattainment nor interfering with maintenance in any other state. Therefore, the commission has no basis for requiring additional emission reductions for the purposes of FCAA, Section 110(a)(2)(D)(i)(I) in this SIP revision.

With regard to whether Texas power plants will either make reductions or purchase allowances under CSAPR and the possible impact of purchasing allowances on pollution transport, the EPA has already addressed the issue of importing allowances through the assurance provisions of CSAPR. Under the current CSAPR program, the assurance provisions, which will go into effect in

2017, limit the amount of allowances that may be imported into a state through the variability limits established for each state. The EPA has already established this level of variation in the emissions over the state budgets from importing allowances to be acceptable for transport purposes. However, in response to Sierra Club's comment regarding the commission's expectations, while some intrastate NO_X trading may be needed and some individual companies may make NO_X reductions, based on 2012 through 2014 emissions trends the commission does not expect that Texas power plants subject to CSAPR as a whole will require significant reductions or interstate trading for compliance with the ozone season or annual NO_X budget requirements. CAMD's 2014 emissions data indicate that total NO_X emissions from Texas' facilities were less than the CSAPR ozone season and annual NO_X budgets; therefore, any interstate trading of NO_X allowances that might occur would likely be allowances being exported from Texas. With regard to the Group 2 SO_2 annual trading program, the commission expects that in the near term some importing of SO_2 allowances from other Group 2 states may be necessary for the state as a whole to comply. However, the assurance provisions that take effect in 2017 will limit the amount of SO_2 allowances that can be imported into Texas. Texas' SO_2 annual budget is 294,471 tons and the variability limit for Texas is 53,005 tons, 18% of the state budget. Additionally, the assurance level for Texas, the sum of the annual budget and variability limit, is 347,476 tons. Texas' 2014 total SO_2 emissions from power plants reported to CAMD was 343,422 tons; therefore, Texas power plant SO_2 emissions are already less than the 2017 assurance level. The commission notes that on July 28, 2015, the United States Court of Appeals for the District of Columbia Circuit found that the CSAPR 2014 SO_2 and ozone season NO_X budgets for Texas and certain other states were invalid because the budgets required more emission reductions than were necessary. The court remanded without vacatur to the EPA for reconsideration of the emission budgets. Therefore, while the current CSAPR budgets for Texas are still in effect, the budgets may be subject to change in the future after the EPA's reconsideration or changes resulting from further appeals.

The Sierra Club expressed support for increasing energy efficiency and renewable energy goals. However, Sierra Club commented that the energy efficiency and renewable energy programs discussed in the proposed SIP revision were largely nonbinding and did not satisfy FCAA requirements for enforceability if the state plans to rely on the measures for emission reductions.

The commission agrees that enforceability is a key component of evaluating SIP creditability of emission reductions. The EPA's four established criteria for SIP creditability of emission reductions are enforceable, permanent, quantifiable, and surplus. However, the commission has not claimed any specific SIP creditable emission reductions from the energy efficiency and renewable energy measures cited in this SIP revision. The commission included the discussion of energy efficiency and renewable energy measures in the SIP narrative to provide additional information for EPA's consideration of the SIP revision. Even though the commission recognizes the challenges with using energy savings as SIP creditable emissions reductions, the commission does acknowledge that such measures can result in emission reductions and are beneficial for the state's air quality goals. Furthermore, Sierra Club's comment implies that all measures included in a SIP must be made enforceable, which the commission does not agree

with. Guidance provided by the EPA has long allowed states to include measures in a SIP that do not meet the four established criteria in what is commonly referred to as the "weight of evidence" discussion. Measures that are not enforceable or that the emission reductions cannot be reliably quantified can still result in actual air quality benefits that will assist the SIP in meeting the required FCAA goals. In fact, the EPA's Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State and Tribal Implementation Plans (EPA-456/D-12-001a, July 2012) actually provides multiple pathways for states to include energy efficiency and renewable energy measures in a SIP even if the measures do not necessarily meet all of EPA's four criteria for SIP creditable reductions. The Weight of Evidence Pathway (EPA's Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State and Tribal Implementation Plans, Section 7.0, page 39) is just one of the four pathways described by the EPA for states in account for energy efficiency and renewable energy in SIP revisions. The Baseline Emissions Projection Pathway (EPA's Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State and Tribal Implementation Plans, Section 4.0, page 33) and the Emerging/Voluntary Measures Pathway (EPA's Roadmap for Incorporating Energy Efficiency/Renewable Energy Policies and Programs into State and Tribal Implementation Plans, Section 6.0, page 37) also provide flexibility for including energy efficiency and renewable energy measures that do not necessarily meet the EPA's enforceability criteria for fully creditable SIP reductions. For the purposes of this transport SIP revision for the 2012 $PM_{2.5}$ NAAQS, the commission decided to account for Texas' energy efficiency and renewable energy measures in the form of a weight of evidence discussion as is allowed by EPA guidance.

ORDER ADOPTING
REVISION TO THE STATE IMPLEMENTATION PLAN

Docket No. 2015-0118-SIP
Project No. 2014-029-SIP-NR

On November 4, 2015, the Texas Commission on Environmental Quality (Commission), during a public meeting, considered adoption of revisions to the state implementation plan (SIP). The Commission adopts revisions to the SIP for Infrastructure and Transport for the 2012 Primary Annual fine particulate matter with a diameter of 2.5 micrometers or less ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS). The Commission adopts the SIP revision demonstrating that Texas is not contributing significantly to nonattainment of the 2012 $PM_{2.5}$ NAAQS for areas in other states; not interfering with the maintenance of the 2012 $PM_{2.5}$ NAAQS in any other state; not interfering with measures required to meet an implementation plan for any other state related to prevention of significant deterioration (PSD); and not interfering with measures required to meet the implementation plan for any other state related to regional haze and visibility. Under Tex. Health & Safety Code Ann. §§ 382.011, 382.012, and 382.023 (Vernon 2011), the Commission has the authority to control the quality of the state's air and to issue orders consistent with the policies and purposes of the Texas Clean Air Act, Chapter 382 of the Tex. Health & Safety Code. Notice of the proposed SIP revisions was published for comment in the May 29, 2015 issue of the *Texas Register* (40 TexReg 3260).

Pursuant to 40 Code of Federal Regulations § 51.102 and after proper notice, the Commission conducted a public hearing to consider the revision to the SIP. Proper notice included prominent advertisement in the areas affected at least 30 days prior to the date of the hearing. A public hearing was offered in Austin on June 16, 2015.

The Commission circulated hearing notices of its intended action to the public, including interested persons, the Regional Administrator of the EPA, and all applicable local air pollution control agencies. The public was invited to submit data, views, and recommendations on the proposed SIP revision, either orally or in writing, at the hearing or during the comment period. Prior to the scheduled hearing, copies of the proposed SIP revision were available for public inspection at the Commission's central office and on the Commission's Web site.

Data, views, and recommendations of interested persons regarding the proposed SIP revisions were submitted to the Commission during the comment period, and were considered by the Commission as reflected in the analysis of testimony incorporated by reference to this Order. The Commission finds that the analysis of testimony includes the names of all interested groups or associations offering comment on the proposed SIP revisions and their position concerning the same.

IT IS THEREFORE ORDERED BY THE COMMISSION that the revisions to the SIP incorporated by reference to this Order are hereby adopted. The adopted revisions to the SIP are incorporated by reference in this Order as if set forth at length verbatim in this Order.

IT IS FURTHER ORDERED BY THE COMMISSION that on behalf of the Commission, the Chairman should transmit a copy of this Order, together with the adopted revisions to the SIP, to the Regional Administrator of EPA as a proposed revisions to the Texas SIP pursuant to the Federal Clean Air Act, codified at 42 U.S. Code Ann. §§ 7401 - 7671q, as amended.

If any portion of this Order is for any reason held to be invalid by a court of competent jurisdiction, the invalidity of any portion shall not affect the validity of the remaining portions.

Date issued:

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

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Bryan W. Shaw, Ph.D., P.E., Chairman