

**APPENDIX B**

**RESPONSE TO COMMENTS**

2013-013-SIP-NR

Adoption  
February 26, 2014

**RESPONSE TO COMMENTS REGARDING THE  
2014 FIVE-YEAR REGIONAL HAZE STATE  
IMPLEMENTATION PLAN REVISION**

The Texas Commission on Environmental Quality (TCEQ or commission) offered a public hearing for this 2014 Five-Year Regional Haze State Implementation Plan (SIP) Revision on September 24, 2013 at 2:00 p.m. in Austin at the TCEQ headquarters. The hearing was not opened because no party signed in to provide oral comment.

In accordance with the federal regional haze rule, Federal Land Managers (FLM) were provided a 60-day review period for this SIP revision before it went for public review. The FLM reviews were scheduled from June 19 through August 20, 2013 and were posted to the TCEQ website for the public to review on August 22, 2013. The public comment period was opened August 23, 2013 through October 1, 2013. The commission received written comments from the United States Environmental Protection Agency (EPA), the National Park Service (NPS), the Fish and Wildlife Service (FWS), and the Forest Service (FS), while Earthjustice submitted the combined comments of the National Park Conservation Association (NPCA) and the Sierra Club.

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**GENERAL COMMENTS**

The FWS commented that overall the proposed SIP revision and appendices included most of the information and necessary elements needed to adequately address regional haze progress.

**The commission appreciates the comment. Some challenges were encountered in developing this 2014 Five-Year Regional Haze SIP Revision as official EPA guidance for the five-year progress SIP revision was not available until after the proposed Texas 2014 Five-Year Regional Haze SIP Revision was complete. However, the commission has attempted to fill in gaps of required information for the adopted final SIP revision. Consultations with the FLMs and the EPA were a benefit to the development of the final document.**

The NPS commented that speciated Interagency Monitoring of Protected Visual Environments (IMPROVE) data from the Guadalupe Mountains National Park (NP) showed high contributions of coarse mass. Coarse mass events were intermittent and higher in the 2000 through 2004 baseline than subsequent years. The NPS expects another big challenge for the 2018 regional haze SIP revision will be how to improve estimates of natural conditions when wildfire or dust events are major contributors in some years but not others. “Hopefully EPA will be working with states and FLM on improving estimates of natural conditions for the 2018 SIPs.”

**The commission appreciates that the NPS understands the difficulty that western states are having with dust events and haze. Since Big Bend and Guadalupe Mountains NPs are both in the Chihuahuan Desert, along with Class I areas in New Mexico, controlling these natural events is infeasible.**

## **CONTROLS AND EMISSION REDUCTIONS**

The NPS commented that Chapter 2: *Status of Control Measures and Emission Reductions* should be updated to include the latest EPA and court actions on the Clean Air Interstate Rule (CAIR) and the Cross-State Air Pollution Rule (CSAPR).

**The commission has added text in Chapter 2 in response to this comment.**

On behalf of the NPCA and the Sierra Club, Earthjustice submitted comments that Texas sources cannot rely on CAIR, and must instead complete Best Available Retrofit Technology (BART) analysis, given that CAIR has been ruled unlawful by the District of Columbia (D.C.) Circuit. Although CAIR is currently in place and being implemented by the EPA, the NPCA and the Sierra Club commented that CAIR is temporary and cannot be relied on in place of BART.

The NPCA and the Sierra Club further commented that because the CAIR replacement, CSAPR, has also been ruled unlawful and vacated by the D.C. Circuit, Texas cannot wait on the EPA to promulgate a new replacement for CAIR and that BART should be required. Because the Federal Clean Air Act (FCAA) and federal regional haze rule require source-by-source BART reviews regardless of the status of CAIR or CSAPR, and because BART is a mandatory measure that must be implemented to achieve reasonable progress toward restoring Class I areas to natural visibility conditions, Texas must implement BART in the absence of final, effective better-than-BART rules.

**CAIR is currently in place, is federally enforceable, and Texas sources are required to meet their CAIR obligations. CAIR was determined by the EPA to be “better than BART” and states subject to CAIR, like Texas, were entitled to rely on CAIR as better than BART in their regional haze SIPs. Although the EPA replaced CAIR with CSAPR, including the replacement of CAIR in the “better than BART” portion of the federal regional haze rule, the EPA did not invalidate its previous modeling that states meeting CAIR requirements already had requirements in place that are better than BART. Therefore, so long as a state is meeting CAIR, the EPA modeling demonstrates that requirements are already in place that impose requirements for electric generating units (EGU) that are better than BART. Such is the case in Texas. Although the EPA has issued a limited disapproval of this portion of the Texas 2009 regional haze SIP revision, that disapproval was solely limited to the need to replace CAIR with CSAPR. With CSAPR vacated by the court, CAIR and its requirements remain effective and in place in Texas.**

**Although the EPA is expected to replace CAIR with other requirements to address the need to control interstate transport of pollutants, it is impossible to foresee when and what form such a replacement may take. However, the reductions already in place from CAIR are unlikely to be significantly reduced, given that the FCAA requirement to reduce transported emissions remains. If a future EPA rulemaking replaces CAIR with new requirements for a better-than-BART determination, or if such rules are ultimately found to be unneeded, then it may be**

**necessary in the future for Texas to implement new rules in response. However, Texas' original 2009 regional haze SIP revision and this 2014 Five-Year Regional Haze SIP Revision currently rely on the EPA's determination that CAIR is better than BART, as was demonstrated in the EPA's original rulemaking that established CAIR as better than BART. No changes were made in response to these comments.**

The EPA commented that it would be helpful if Texas presented a unit-by-unit summary of the impact of CAIR on the emissions in the state. Such a summary could include a summary of which units included in CAIR reduced their sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) emissions and which units acquired allowances. The EPA would also like Texas to provide details of any future controls it knows will be installed by CAIR sources. The EPA further commented that in order to assess the reductions and visibility improvements due to reductions made in response to CAIR, it would be useful for Texas to do a unit-by-unit analysis of reductions due to CAIR compliance and for Texas to do a comparison of actual reductions and planned reductions to the Central Regional Air Planning Association (CENRAP) predictions. The EPA commented that it would also be helpful in understanding the impact of the various state programs cited by Texas if Texas estimated the tonnage of emission reductions achieved from these programs. The EPA requested that Texas provide a summary of the emissions reductions achieved throughout Texas through implementation of the measures included in this 2014 Five-Year Regional Haze SIP Revision. The NPS requested additional source-specific information as to when sources installed controls or will install controls in the future. The NPS found it difficult to tell if Texas was on track to meet the EGU reductions included in the CENRAP and Western Regional Air Partnership (WRAP) modeling used to establish reasonable progress goals in Texas and in neighboring states.

**The commission considers these requests for information to be outside the scope of the requirements for the analyses required by the federal regional haze rule for preparation and submittal of this 2014 Five-Year Regional Haze SIP Revision. However, in response to the EPA's requests for unit-by-unit analysis, the TCEQ has added some additional information to Chapter 2, Section 2.6.1 of this SIP revision. To assess the overall effectiveness of the CAIR NO<sub>x</sub> and SO<sub>2</sub> limits on fossil fuel-fired EGUs in Texas, the TCEQ has compared the year-by-year NO<sub>x</sub> and SO<sub>2</sub> allowances for a set of fossil fuel-fired EGUs to the annual NO<sub>x</sub> and SO<sub>2</sub> emissions from these EGUs. This set of EGUs, represented in Appendix E: *CAIR Allowances and Emissions for Texas EGUs*, is the same set of 20 sites used to evaluate existing pollution control systems for the control of haze-causing emissions in Table 2-7. Actual annual emissions are from the EPA's AMPD for RY 2006 through RY 2012. Final CAIR NO<sub>x</sub> allowance allocations are from the TCEQ's Emissions Banking and Trading Program from 2009 through 2017. Final CAIR SO<sub>2</sub> allowance allocations are from the EPA's AMPD for RY 2010 through RY 2012. Oak Grove, Sandow Station, and J.K. Spruce Unit 2 are new units. Sandy Creek Energy Station did not become operational until 2012. The TCEQ notes in Chapter 2, Figure 2-1: *Aggregate Texas CAIR EGU NO<sub>x</sub> Allowances vs. NO<sub>x</sub> Emissions* and in Chapter 2, Figure 2-2: *Aggregate Texas CAIR EGU SO<sub>2</sub> Allowances vs. SO<sub>2</sub> Emissions* that the total actual annual NO<sub>x</sub> and SO<sub>2</sub> emissions, respectively, for these 20 solid fossil fuel-fired EGUs illustrate a trend of decreasing NO<sub>x</sub> and SO<sub>2</sub> emissions from 2006 through 2012, with the exception of RY 2010. If RY 2013 data were also included, the trend of decreasing emissions would continue. However, the RY 2013 quality-assured data were not available in time to be included in this SIP revision. For**

**CAIR NO<sub>x</sub> allowance allocations, the future years represent predicted allocations and may change pursuant to economic and regulatory reasons.**

**The TCEQ does not have easily accessible information on the specific regulatory requirements driving emission reductions at each source or unit. Many sources are subject to multiple requirements on the same pollutants. For EGUs, for example, there are emissions restrictions derived from CAIR, from various state-initiated emission reduction requirements such as the Mass Emissions Cap and Trade Program, from MATS requirements, and, for some units, federal consent decrees and state and federal new source review (NSR) permitting requirements. For programs like CAIR that include cap and trade limitations, the methods by which a source complies with the limitations may change over time. For the requirements that the TCEQ enforces, the TCEQ tracks compliance with each program's requirements, but it does not track for each unit which limitation is controlling or when the limitation that is controlling for each pollutant changes from one program to another.**

**Regarding future controls, it is unlikely companies would commit to their strategy for future controls during this period of regulatory uncertainty concerning the status of CAIR and CSAPR, the EPA's Mercury and Air Toxics Standards (MATS), greenhouse gases (GHG), new source performance standards, and the tightening of the SO<sub>2</sub> and fine particulate matter (PM<sub>2.5</sub>) National Ambient Air Quality Standards (NAAQS). Making assumptions about a company's future controls would not be enforceable. Therefore, the TCEQ did not include future controls in Table 2-7. However, the following two EGUs have publicly announced some future unit retirements, which are not yet enforceable or permanent.**

- In 2012, American Electric Power (AEP) announced plans to retire the Welsh No. 2 coal-fired unit at the Welsh Power Plant in Titus County (RN100213370). The announcement was included in AEP's 2013 Corporate Accountability Report [www.aepsustainability.com/performance/environmental/FleetTransformation.aspx](http://www.aepsustainability.com/performance/environmental/FleetTransformation.aspx). In fall 2013, the EPA's Air Markets Program Data (AMPD) website listed Welsh Boiler No. 2 as having actual 2009 emissions of SO<sub>2</sub> as 9,400 tons per year (tpy) and NO<sub>x</sub> emissions as 3,300 tpy. This retirement will impact the first 10-year regional haze planning period that ends in 2018 but not the current period from 2009 through 2014 that this SIP revision covers. The retirement of Welsh Boiler No. 2 is part of a court-ordered consent decree. The following is an excerpt from an AEP news release dated March 22, 2012:**

**... Welsh 2 will retire as soon as December 31, 2014, but no later than December 31, 2016, under terms of court-ordered consent decrees related to separate actions.**

- In 2011, City Public Service (CPS) announced plans to retire both J T Deely Coal-Fired Units No.1 and 2 in Bexar County by 2018 (RN100217975). This retirement will not impact the first regional haze planning period that ends in 2018, but may help with reductions in the 2019 through 2028 regional haze planning period. In fall 2013, the EPA's AMPD website listed Deely Boiler No. 1**

as having actual 2009 emissions of SO<sub>2</sub> as 8,400 tpy and NO<sub>x</sub> emissions as 1,700 tpy. Deely Boiler No. 2 was listed as having actual 2009 emissions of SO<sub>2</sub> as 8,600 tpy and NO<sub>x</sub> emissions as 1,800 tpy. Additionally, CPS received authorization for installation of selective catalytic reduction (SCR) for NO<sub>x</sub> control on J T Deely No. 2 at the Calaveras Plant. Based on emissions data from EPA's AMPD, the SCR on J T Deely Boiler No. 2 became operational in 2011, resulting in some NO<sub>x</sub> emission reductions that may benefit the current planning period.

The commission agrees with the NPS that it is difficult to assess whether source-specific reductions are effective. However, Chapter 4: *Emissions Inventory Development and Comparison*, Figure 4-2: *Actual and Projected Emissions Trends for Electric Power Generation* shows actual downward trends for all Texas EGUs as a group. Additionally, the federally funded 2011 IMPROVE Report and actual monitoring data through 2011 show downward trends in sulfate on the 20% most impaired days at all of Texas' and most nearby Class I areas in surrounding states (<http://vista.cira.colostate.edu/improve/Publications/Reports/2011/2011.htm>; Hand et al. 2011). Since there is no fixed rate of progress, the TCEQ considers the downward emissions trends meet the reasonable progress goals.

The EPA, the NPCA, and the Sierra Club requested that Texas include a discussion on the results of any additional analysis on the technical feasibility and cost-effectiveness of emission controls for oil and gas production. The NPCA and the Sierra Club also suggested Texas look at other sources such as refineries, cement kilns, and chemical processing facilities that are likely to provide similar opportunities to significantly reduce haze-causing air pollution through readily-available reasonable progress controls.

In the 2009 regional haze SIP revision, Chapter 10: *Reasonable Progress Goals*, paragraph four on page 10-2, the TCEQ included a discussion of oil and gas NO<sub>x</sub> emissions and a grant program that retrofitted gas-fired, rich-burn compressor engines. As part of Senate Bill (SB) 2000, the 80th Texas Legislature approved a grant program to assist facilities in reducing emissions of NO<sub>x</sub> from stationary gas-fired, rich-burn compressor engines by installing nonselective catalytic reduction systems or other commission-approved control systems. The TCEQ approved approximately \$600,000 to this specific grant program. A total of 86 engines were partially or fully retrofitted. The grant complemented the East Texas combustion rules discussed in this 2014 Five-Year Regional Haze SIP Revision on page 2-10 in Chapter 2, Section 2.7.3 *East Texas Engines*, which estimated approximately 8,000 tons per year of NO<sub>x</sub> reductions by 2010 in the 33 East Texas counties subject to those rules.

As addressed in Chapter 5: *Assessment of Reasonable Progress Goals*, the TCEQ determined that the current SIP elements and strategies are sufficient to enable Texas to meet all established reasonable progress goals and to not prevent other states that have Class I areas affected by emissions from Texas from meeting their established reasonable progress goals.

**When making this conclusion, current emissions inventories that include the recent growth in oil and gas activity were used. Current inventories were compared with what now appears to be conservative estimations of 2018 inventories and demonstrate that the original emission estimates used in the CENRAP modeling are higher than more recent emission estimates. Data from the 2011 IMPROVE report, developed using data from Class I area IMPROVE program monitors, was reviewed and discussed in Chapter 5. The IMPROVE data also indicate that the current SIP elements and strategies are effective for reducing anthropogenic contributions to visibility impairment.**

The NPCA and the Sierra Club stated that through the CAIR/CSAPR programs, power plants can opt to purchase emission allowances from other power plants in lieu of reducing emissions to meet source allocations, causing disproportionately high levels of pollution and visibility hot spots near Class I areas. Additionally, the 2009 regional haze SIP revision provides an inadequate assessment of reasonable and readily-available controls and upgrades for EGUs that would significantly improve visibility.

The NPS, the FWS and the FS commented that the proposed 2014 Five-Year Regional Haze SIP Revision calls for no additional controls. The FS stated that very few of its significant concerns with the 2009 regional haze SIP revision have been addressed. While there have been some improvements to air quality, the FS does not agree with the reasonable progress goals that Texas set. Since the EPA has not taken action on Texas' 2009 regional haze SIP revision, the NPS does not know if the EPA accepts that Texas is implementing all reasonable control measures.

**The commission has determined that additional controls are not appropriate at this time. Visibility impairment (measured in inverse megameters) at two nearby Class I areas (Wichita Mountains and Caney Creek) is projected to drop by 24% and 34%, respectively, between the base period (2000 through 2004), to the date of the first RPG (2018). Texas did consider additional emission reductions as described in Appendix 10-1: *Analysis of Control Strategies RPG* of the 2009 regional haze SIP revision. Following the analysis steps prescribed in the federal regional haze rule, Texas determined that during the first planning period additional controls were not reasonable (for more details see Chapter 10: *Reasonable Progress Goals* along with Appendix 10-2: *Estimating Visibility Impacts from Additional Point Source Controls*, both in the 2009 regional haze SIP revision).**

**Further, the TCEQ's responsibility is to meet the rule requirements in a cost effective manner rather than to implement any and all controls possible.**

**The commission agrees that since the EPA has not acted on Texas' 2009 regional haze SIP revision, the FLMs and the state do not know if the EPA accepts the 2009 regional haze SIP revision. The level of analysis required for the five-year progress report is not adequate to fully determine the reasons for visibility improvement on the 20% most impaired days at Big Bend, Guadalupe Mountains, Wichita Mountains, and Caney Creek Class I areas and is not contained in this 2014 Five-Year Regional Haze SIP Revision. A more detailed analysis would be appropriate for developing the 2018 regional haze SIP revision. However, SO<sub>2</sub> and NO<sub>x</sub> emissions reductions from all sources in Texas (shown in Chapter 4, Figure 4-1:**

**Actual and Projected Statewide Emissions Trends for Select Pollutants and SO<sub>2</sub> and NO<sub>x</sub> emissions reductions from EGUs in Texas (shown in Chapter 4, Figure 4-2: Actual and Projected Emissions Trends for Electric Power Generation) together with the resulting reductions in visibility impairment at these Class I areas, particularly from sulfate, are consistent with a reduction in the impact of emissions from Texas. Further, the reasonable progress goals set in the 2009 regional haze SIP revision are for 2018 and there is no requirement for straight line reductions in emissions from the 2002 base year to 2018.**

The NPS, the Sierra Club and the NPCA commented that TCEQ should have considered the cumulative impacts of their sources and used a lower threshold to consider controls for an individual source. The NPS also commented that Texas has not demonstrated that it is requiring all reasonable controls necessary to address its contribution to visibility impairment at Class I areas in neighboring states. The FS commented that no analysis of area of influence for Class I areas affected by Texas was performed in order to form the basis of an adequate four factor analysis in support of the reasonable progress goals (RPG) set by states with Class I areas impacted by Texas sources. The Sierra Club and the NPCA commented that this 2014 Five-Year Regional Haze SIP Revision should have considered various control scenarios and mentioned that Oklahoma's 2010 regional haze SIP employed a cost threshold of \$5,000 per ton rather than the \$2,700 per ton used by Texas.

**The cost threshold and cumulative visibility benefit comments are not within the scope of this 2014 Five-Year Regional Haze SIP Revision. The TCEQ did consider the cumulative impacts of multiple sources and reported the results of this consideration in Chapter 10: Reasonable Progress Goals, pages 10-4 through 10-9, of the 2009 regional haze SIP revision. The TCEQ used areas of influence and used the \$2,700 per ton reasonableness threshold used in the BART and CAIR procedures to select the additional controls that would be the most cost-effective and effective for producing additional visibility improvement. The TCEQ determined in the 2009 SIP submittal that over \$300 million in additional control costs to produce less than 0.5 deciview of improvement at each Class I area, which is imperceptible to the human eye, would not be reasonably cost-effective. A perceptible change in scene visibility should be approximately a one or two deciview change in the deciview scale (i.e., a 10% to 20% fractional change) ([http://vista.cira.colostate.edu/improve/publications/NewsLetters/apr\\_93.pdf](http://vista.cira.colostate.edu/improve/publications/NewsLetters/apr_93.pdf)).**

The NPS asked what additional emission reductions were included in the CENRAP modeling that are enforceable but have not been implemented.

**The commission is aware of some emissions reductions accounted for in the CENRAP modeling for 2018 that are legally enforceable with compliance dates between 2013 and 2018. The commission is aware of additional legally enforceable emission reductions not accounted for in the CENRAP modeling for 2018. Some of these additional reductions are already in force and some will occur between 2013 and 2018, but assembling the information to answer this request is beyond the requirements for the five-year progress report. Further reductions will occur before 2018 as a result of the requirements of CAIR or any eventual successor and as a result of the MATS requirements, but the units that will have emission**

**reductions under these requirements are not yet known, so it is not possible to prepare a complete and accurate response to this request.**

The NPS requested that Texas discuss the pollutant contributions to visibility impairment and how those contributions have changed over the decade. The NPS also requested the TCEQ establish which pollutants are most important to control to improve visibility on the 20% worst days and which pollutants are responsible for the slight degradation on the 20% best days at Big Bend NP.

**The TCEQ considers that detailed source apportionment analysis is appropriate in preparation for the major, 10-year regional haze SIP revisions but not for the five year progress reports as long as a negative declaration is made through the determination required under 40 Code of Federal Regulations (CFR) §308(h)(1) that further revision of the existing implementation plan is not needed at this time.**

## **VISIBILITY**

The EPA and the NPS requested that the TCEQ add and discuss IMPROVE data through 2011. The NPS submitted graphics showing pollutant specific light extinction trends for Big Bend, Guadalupe Mountains, Wichita Mountains, and Caney Creek. The NPS generated the graphics using the WRAP Technical Support System which can be found at <http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx>.

**The commission appreciates the suggestions. In response to this comment, the TCEQ has included the IMPROVE data through 2011 and has added discussion of the visibility impacts of specific pollutants to the discussion in Chapter 3: *Assessment of Visibility*.**

The EPA and NPS commented that Texas indicated in the 2009 regional haze SIP revision that the component that most likely needs improved estimation is organic carbon, and there is significant regulatory uncertainty with regard to what prescribed fires should or should not be considered as natural. “When the EPA revises the *Interim Air Quality Policy on Wildland and Prescribed Fires*, it is expected such issues will be clarified.” The EPA and the NPS asked if Texas had any new analysis to evaluate and refine estimates of natural conditions for the Texas Class I areas.

**The estimate of the amount of visibility impairment that would exist under natural conditions does not affect the selection of reasonable progress goals or the assessment of progress toward the reasonable progress goals established in the first round of regional haze SIP submittals. The TCEQ anticipates that consultation with the FLMs on natural conditions estimates will occur at the latest during consultations on the 2018 regional haze SIP revision. Therefore, no changes were made in response to this comment.**

The NPCA and the Sierra Club commented that the Big Bend Regional Aerosol and Visibility Observational Study (BRAVO) study found that sulfate emissions caused over 50% of the visibility impairment at Big Bend NP, and sulfate emissions during peak particulate sulfate episodes were largely from sources in east Texas.

**The commission notes that the CENRAP modeling for the full 2002 calendar year is much more robustly representative of the causes of visibility impairment at Big Bend NP than the BRAVO study. The TCEQ notes that both the analysis of the 2000 through 2004 IMPROVE data and the CENRAP 2002 Particulate Matter Source Apportionment (PSAT) modeling agree that sulfate aerosol does contribute more than 50% of the visibility impairment at Big Bend NP. The TCEQ disagrees with the implication that emissions from Texas contribute a majority of either the sulfate aerosol or the total extinction to Big Bend NP on the 20% most impaired of days. On those days the PSAT analysis finds that Texas contributes less than 25% of the extinction from sulfate aerosol and approximately 25% of the total extinction. The modeling shows that more than 50% of the extinction on the 20% of days with the most visibility impairment comes from international transport into Texas.**

The NPS requested that Texas discuss the pollutant contributions to visibility impairment and how those contributions have changed over the decade. The TCEQ needs to establish which pollutants are most important to control to improve visibility on the 20% worst days, and which pollutants are responsible for the slight degradation on the 20% best days at Big Bend NP. The NPS noted that the IMPROVE report of 2005 through 2009 data was included as an appendix. The NPS asked the TCEQ to discuss in the progress report the pollutant contributions for the Class I areas in Texas and other areas impacted by Texas emissions.

**The commission considers that pollutant contributions and visibility impairment was well covered in the 2009 SIP and beyond the scope of this SIP revision. However, the commission has added graphs in Chapter 3 on pages 3-4 through 3-11, to clarify and aid in understanding the data included in this 2014 Five-Year Regional Haze SIP Revision by showing the pollutant-by-pollutant impact at Big Bend, Guadalupe Mountains/Carlsbad Caverns, Wichita Mountains, Caney Creek, and White Mountain Class I areas. Since sulfate, the visibility impairing product of atmospheric oxidation of SO<sub>2</sub>, is the main anthropogenic cause of visibility impairment on the 20% most impaired days at all four of these IMPROVE monitors, it is the main focus of the discussion that has been added.**

#### **EMISSIONS INVENTORY**

The NPS requested 2002 and 2018 inventory data tables from the 2009 regional haze SIP revision be provided in this 2014 Five-Year Regional Haze SIP Revision so that the reader can compare previous and current inventory projections.

**The commission has added two tables to Chapter 4 in response to the comment. Since 2009, approximately 20 research reports have been developed to help improve the emissions inventory (EI) of Texas. For individual reports, please see the following TCEQ website**  
**[http://www.tceq.texas.gov/airquality/airmod/project/pj\\_report\\_ei.html](http://www.tceq.texas.gov/airquality/airmod/project/pj_report_ei.html).**

The NPS agreed that the assumptions made in the inventory between CENRAP-developed 2002 and 2018 inventories used in the model and the actual inventory between 2005 and 2011 made comparisons difficult and requested that assumptions be identified. The NPS requested additional explanation on the reductions of area source volatile organic compounds (VOC) and NO<sub>x</sub> emissions between 2008 and 2011.

**Emissions inventories are not static and the commission continuously assesses and improves emissions estimates over time. As a result, emissions estimates may change as a result of the updated methodology. This historical data represents the best estimate of emissions at that time.**

**The reduction of VOC emissions in the area source inventory is attributed to many emissions factors being updated. Changes were incorporated into the inventory because the commission updated its method for estimating the emissions from combustion categories. Area source NO<sub>x</sub> emissions reductions are attributed to reductions in allowed NO<sub>x</sub> emissions for stationary, gas fired, reciprocating internal combustion engines (ICE) per 30 Texas Administrative Code 117. The compliance date for these rules was March 2005 for the Houston-Galveston-Brazoria 1997 eight-hour ozone nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties). For the Dallas-Fort Worth (DFW) 1997 eight-hour ozone nonattainment area (Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties), the compliance date was March 2009 for rich-burn and March 2010 for lean-burn ICE and larger engines 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.**

**Additionally, major drops in reported area source VOC emissions for the 2011 EI were a result of new emission factors for condensate storage for the oil and gas category based on an Environ study ([http://www.tceq.texas.gov/airquality/airmod/project/pj\\_report\\_ei.html](http://www.tceq.texas.gov/airquality/airmod/project/pj_report_ei.html)). There were also decreases in emissions in the solvents category as a result of updates in its emissions estimation methodology.**

**The 2002 emissions were grown to 2018 emission estimates using Economic Growth Analysis System (EGAS5). Other changes in assumptions that complicate comparisons were summarized in this 2014 Five-Year Regional Haze SIP Revision under Chapter 4, Section 4.7 *Statewide Emissions Data Comparison*. These include new categories not previously inventoried in the area source oil and gas categories, changes in the mobile source model (Mobile 6 to MOVES), and improved EI estimation methodologies used for some source categories such as locomotives and marine vessels. No change was made as a result of this comment.**

The EPA commented that Texas should explain which estimates are significantly different from CENRAP estimates. The EPA noted an apparent very large adjustment to PM estimates due to changes in the treatment of fugitive road dust. The EPA asked whether this was factored into CENRAP estimates and how might it be expected to change the projections for visibility improvements.

**Fugitive road dust was not factored into the CENRAP estimate. Changes in the inventory that occurred for the 2005, 2007, or 2011 inventories did not impact the CENRAP-developed inventories because these changes (such as the treatment of road dust) occurred after the CENRAP developed 2002 and 2018 inventories.**

**Specifically, the 2018 inventory is based on grown 2002 inventory and did not include input from the intervening inventories because they did not yet exist.**

**Of significance, the difference between the CENRAP-developed inventories and the TCEQ's 2005, 2007, or 2011 inventories was the inclusion of coal burning in the small industrial and residential fuel area source categories for 2002 and 2018. This inclusion was in error because Texas does not have coal burning for these categories. As discussed elsewhere, this erroneous inclusion in the 2002 inventory was grown to estimated 2018 emissions. Other differences are noted in Chapter 4, Section 4.7 *Statewide Emissions Data Comparison*. Changes that occurred for a specific year, such as use of more precise non-road emissions data in 2005, were not incorporated into the already existing modeling inventory developed by CENRAP.**

**Because the SO<sub>2</sub> emissions from area sources were overestimated in the base period and these emissions were used to estimate the 2018 emissions, removal of the overestimated SO<sub>2</sub> emissions in 2002 and the 2018 SO<sub>2</sub> emissions would lead to 2018 projection of more reduction in ammonium sulfate visibility impairment than was projected by the CENRAP modeling. Thus, the projected improvement would be greater than the CENRAP modeling projected. This is another reason that the TCEQ concludes that the current strategy is adequate to meet the reasonable progress goals that were set by Texas and surrounding states based on the CENRAP modeling.**

**For the Texas Class I areas, the projections for future impact of fugitive dust (i.e., fine soil and coarse mass) were established based on the conclusion that the sources of fine soil and coarse mass impacting Texas' two Class I areas are predominantly natural. For this reason, the modeling projection used a relative response factor of one for both fine soil and coarse mass. Since the projected future concentrations of fine soil and coarse mass are obtained by multiplying the measured base period concentrations by the relative response factor, the concentrations are projected to be unchanged. Changes in fugitive source emissions inventory estimates for fugitive dust would, therefore, not affect projected future fine soil and coarse mass impacts on visibility at the two Texas Class I areas.**

The NPS suggested deleting the CO from Chapter 4, Figure 4-1: *Actual and Projected Statewide Emissions Trends for Select Pollutants* and suggested showing ammonia emission trends as background ammonia concentration is a factor in particle formation. The NPS included an example of the figure with corrected estimates for area source SO<sub>2</sub> and ammonia (NH<sub>3</sub>) emissions instead of CO, indicating that actual emissions are tracking below the future projections.

**In response to this comment, Chapter 4, Figure 4-1 was changed in this 2014 Five-Year Regional Haze SIP Revision by removing CO and adding NH<sub>3</sub>. The SO<sub>2</sub> was not changed because the comparison is between the actual and the modeled inventory.**

The NPS quoted the 2009 regional haze SIP revision: "The CAIR cap is the total allowable emissions of SO<sub>2</sub> from EGUs in Texas under CAIR. The IPM model analysis used by CENRAP predicts that by 2018 EGUs in Texas will purchase approximately 125,000 tons per year of emissions allowances from out of state. The TCEQ requested that key EGUs in Texas review and comment on the predictions of the IPM model. However, no EGU made an enforceable commitment to any particular pollution control strategy and preferred to retain the flexibility offered by the CAIR program. In the five-year periodic progress report required by 40 CFR §51.308(g), the TCEQ plans to review emissions inventory and permit information to evaluate the accuracy of the predicted emissions used in the CENRAP modeling." The NPS and the EPA requested discussion of the findings of the state's review of EI and permits in this 2014 Five-Year Regional Haze SIP Revision.

**The actual EGU emissions were compared to the predicted emissions in developing this five-year SIP revision. For electric utility trends, the commission refers the commenters to Chapter 4, Figure 4-2: *Actual and Projected Emissions Trends for Electric Power Generation*. This figure compares SO<sub>2</sub> and NO<sub>x</sub> emissions trends for the state's EGUs with CENRAP's modeling values. The comparison is between a trend using a best estimate of emissions in 2018 and actual emissions. A straight line projection was made between the 2002 and 2018 CENRAP modeled values. For both pollutants, the emissions trends are downward and remain at or below the projected emissions trend line between 2002 and 2011.**

**Emissions were also compared for the non-EGU sources in Chapter 4, Figure 4-1. The actual emissions for the periodic inventory years from 2002 through 2011 are compared against a linear change between 2002 actual emissions and 2018 modeled emissions. Carbon monoxide is not shown on this graph as a result of a comment by the NPS because its emission quantity is large enough to compress the vertical axis, making the trends for the smaller emitting pollutants not as visible. However, the carbon monoxide emissions of approximately 3.3 million tons per year for 2011 remain significantly below the projected amount of approximately 6.0 million tons per year for 2018 emissions. Changes were made in response to this comment.**

**The validity of enforceable commitments needed from EGUs versus the flexibility of CAIR was not considered to be within the scope of this 2014 Five-Year Regional Haze SIP Revision.**

The NPS questioned why the overestimated SO<sub>2</sub> emissions from the regional haze SIP are included in Chapter 4, Figure 4-1 for 2002 and 2018 in this 2014 Five-Year Regional Haze SIP Revision. The NPS noted that the Texas 2009 regional haze SIP stated that CENRAP modeled an overestimated amount of SO<sub>2</sub> for the 2002 and 2018 inventories. Because the overestimated amount accounts for almost 10% of the overall SO<sub>2</sub> inventory, the NPS requested correction of the over-reported area source SO<sub>2</sub> emissions as shown in Chapter 4, Figure 4-1. The NPS estimated a corrected amount of area source emissions by growing the corrected (value reported to the EPA) 2002 emissions to 2018 at the same rate as the uncorrected value. The NPS concluded that the SO<sub>2</sub> will remain below the projected modified 2018 SO<sub>2</sub> emissions. The EPA requested a comparison between the more recent SO<sub>2</sub> estimates and the CENRAP estimate.

**The EI values from 2002 and 2018 are reported in the 2009 regional haze SIP revision and were not changed because they represent the values that were modeled in the 2009 regional haze SIP revision. The line for the modeling inventory is included in the comparison in Chapter 4, Figure 4.1 to indicate that the actual emissions from 2005, 2008, and 2011 inventories are below the values that were modeled. The updated 2002 values were reported to the EPA for the NEI. The overestimated amount is 10% of the overall SO<sub>2</sub> for 2002. The statewide estimate of 529,664 tons for SO<sub>2</sub> in 2011 is 29% below the projected state-wide SO<sub>2</sub> emissions of 749,119 for 2018 and consequently the impact from erroneous SO<sub>2</sub> values does not change the commission's conclusion that that SO<sub>2</sub> emissions continue to decrease and remain within the modeling projections.**

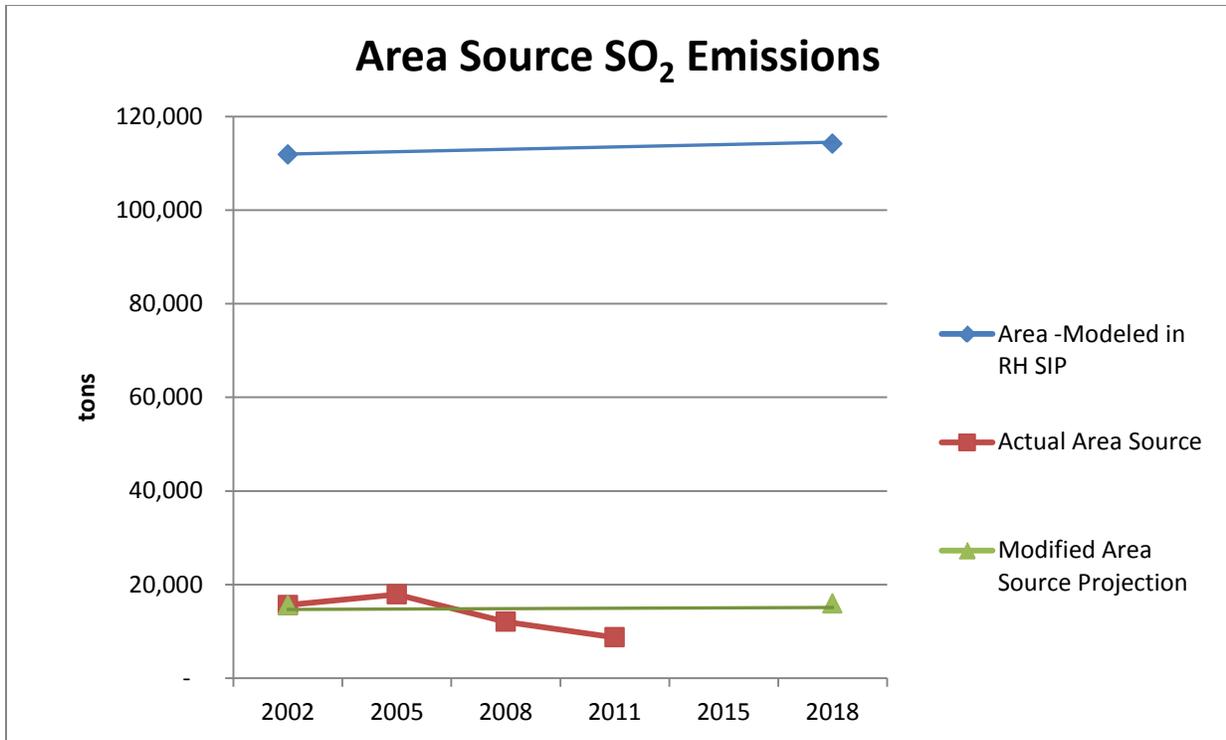
**The 2018 values are developed using growth estimates from the 2002 inventory. Correctly removing the overestimated amount in the future inventory would require developing a new inventory using a growth model, as not all sectors or categories are grown at the same rate. Because modeling was not required as part of the five-year SIP revision, these 2018 values were not updated.**

**As discussed above, the over-representation did not impact control strategy analysis and, as such, updating the estimates was not performed. No changes were made as a result of these comments.**

**The commission has concerns that removing the emissions mathematically based on simple ratios or projections for the entire area source category rather than by developing a modeling inventory could impact other area source emissions incorrectly. Not all sources are grown at the same rate and using an across-the-board ratio treats them all identically. However, this approach can be used to show that the impact from erroneous SO<sub>2</sub> values does not change the commission's conclusion that that SO<sub>2</sub> emissions continue to decrease and remain within the modeling projections for the state even with this alternative approach.**

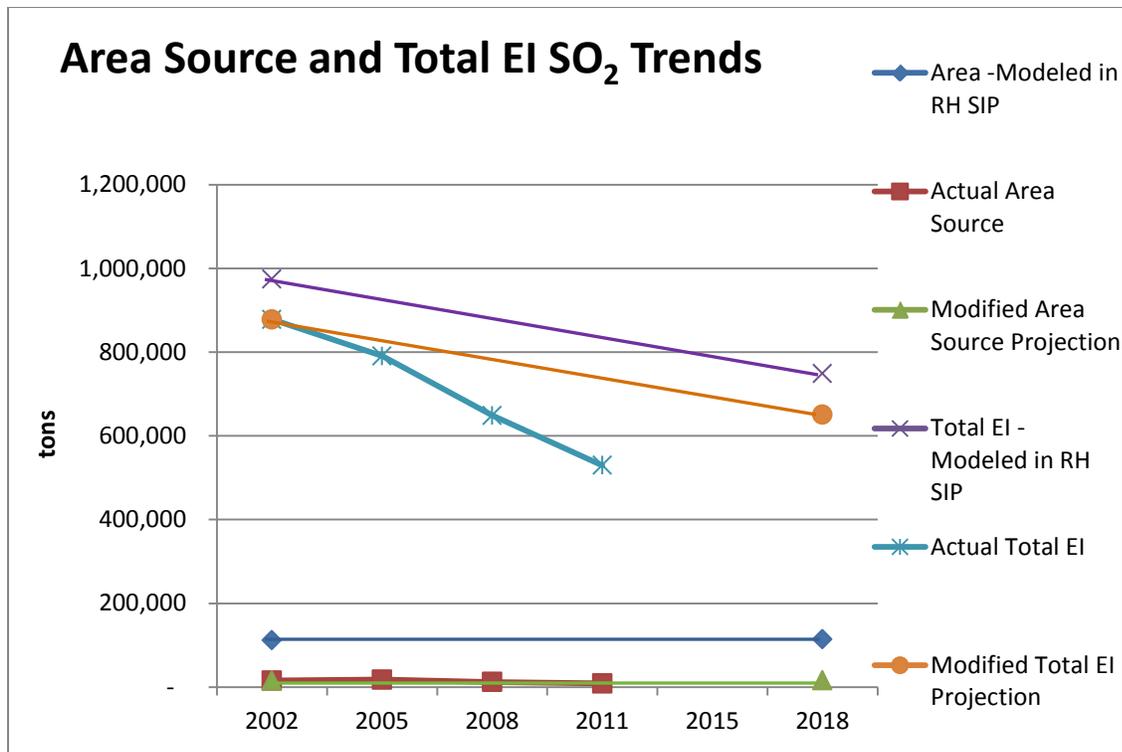
**Sulfur dioxide emissions values used in Chapter 4, Figure 4-1 can be modified to show rough estimates of a removal of the over-reported amount in the projected 2018 inventory. The removal is made by estimating the actual incorrectly reported amount (based on a percentage) from 2002 remains the same in 2018. The over-reported amount in the 2002 inventory was 96,220 tons which was 86% of the reported area source number of 111,853 tons. The correct value reported to the EPA's national database is 15,663 tons. The projected 2018 area source SO<sub>2</sub> is 114,138 tons. Removing 86% of this value leaves 15,952 tons.**

**Actual SO<sub>2</sub> emissions for 2002, 2005, 2008, and 2011 were compared against the projected, modified trend. Although rising in 2005 above the trend line, the emissions fall after this peak and the emissions remain below the modified projection level, as shown in Figure A: *Area Source SO<sub>2</sub> Emissions* that follows. The statewide area source emissions were estimated to be 2% of the overall inventory in 2005 and this brief rise in their emissions did not result in the SO<sub>2</sub> exceeding the overall projected level.**



**Figure A: Area Source SO<sub>2</sub> Emissions**

**The impact of changes in the area source emissions are shown on the total EI in the following graph, Figure B: *Area Source and Total Emissions Inventory SO<sub>2</sub> Trends*. The overall SO<sub>2</sub> emissions remain below the projected 2018 emissions. This is the case for both the modified and the unchanged 2018 SO<sub>2</sub> emissions.**



**Figure B: Area Source and Total Emissions Inventory SO<sub>2</sub> Trends**

The NPS requested that Texas provide support for its assumptions that, “The erroneously modeled industrial and residential coal combustion sources are typically individually smaller and distant from Class I areas. As a result, their representation in the model does not significantly detrimentally affect visibility estimates or model conclusions.”

**As discussed in the previous response, removing the overestimated SO<sub>2</sub> emissions from the area source inventory would reduce the ammonium sulfate visibility impairment that was projected by CENRAP modeling.**

The NPS requested an update on the TCEQ’s work with CENRAP to update the over-reported area source SO<sub>2</sub> emissions for future modeling.

**The commission notified CENRAP of the error after CENRAP’s modeling for the 2009 regional haze SIP was nearing completion. The error could not be corrected at that time. No additional CENRAP modeling has occurred since that date. At such time as that model is re-used, future emissions, including those over-reported SO<sub>2</sub> emissions will be readdressed. A more detailed explanation has been added to Chapter 4, Section 4.6: *Emission Data* in response to this comment.**

The EPA commented that Texas should include a detailed discussion of emissions inventory development for oil and gas production since the CENRAP emissions inventories were developed, as well as a comparison of current oil and gas emission estimates to those included in the 2002 and 2018 CENRAP emissions inventories.

The projected NO<sub>x</sub> and VOC emissions used in the CENRAP modeling estimates are greater than the most current overall area source category emissions even with the increased activity in oil and gas activity. Texas projects less anthropogenic visibility impairment in 2018 than the CENRAP modeling projected; therefore, Texas considers the current long-range strategy to achieve the 2018 RPGs is adequate. The TCEQ will continue to monitor this activity and incorporate the most current data available into its inventory estimate.

The TCEQ expended significant resources to improve the oil and gas area source inventory production categories for the 2011 inventory. The improvements included the development and refinement of a state-specific oil and gas area source emissions calculator. This oil and gas area source emissions calculator uses county-level production and local equipment activity data with local emissions requirements to estimate emissions from individual production categories including compressors engines, condensate and oil storage tanks, loading operations, heaters, and dehydrators. A significant improvement made to the oil and gas calculator for the 2011 inventory was the development of refined emission factors for VOC emissions from condensate storage tanks. A summary of the activities include:

- **2010 through 2011 Barnett Shale Special Oil and Gas Inventory** – A two phase inventory project that obtained detailed equipment information and emissions data on oil and gas sources in the 23 county Barnett Shale formation area (<http://www.tceq.texas.gov/assets/public/implementation/air/ie/pseiforms/Barnett%20Shale%20Area%20Special%20Inventory.pdf>). This information was used to identify and analyze appropriate regulatory activities such as developing strategic plans to address air quality concerns and improving the oil and gas inventory.
- **2010 DFW Compressor Engine Project** – The TCEQ sponsored a University of Texas at Austin project to sample the ambient impact primarily downwind of gas compressor engines and develop typical compressor engines ambient signatures. These ambient signatures provided the TCEQ the ability to identify days when oil and gas compressor engines influence ozone levels in the DFW area.
- **2010 Oil and Gas Platform Inventory Improvement Project** – This project was designed to improve TCEQ information on the specific number of platforms, operational type (oil, gas, or oil and gas), location, and configuration of oil and gas platforms found in Texas state waters up to 10 miles from the shoreline ([www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820784003FY1025-20100816-ergi-Offshore Oil Gas Platform.pdf](http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820784003FY1025-20100816-ergi-Offshore%20Oil%20Gas%20Platform.pdf)).
- **2010 Oil and Gas Model Evaluation** – This project used multiple studies (WRAP, TCEQ, CENRAP, etc.) to evaluate existing methods and models for estimating oil and gas production emissions for sources such as compressor engines, heater-treaters, storage tanks, well completions, pneumatic devices, fugitives, and dehydrators. This project identified the most appropriate method to calculate Texas emissions for each source type on a county basis. A Texas-

**specific spreadsheet calculator capable of generating future area source inventories was also developed.**

- **2010 Produced Water Storage Tank Project – This project estimated VOC emissions from the storage of water produced during upstream oil and gas activities.**
- **2010 Upstream Oil and Gas Tank Emission Measurements – This study directly measured emissions from storage tanks at approximately 10 sites selected from the data collected by the 2007 Remote Sensing Survey Project, ambient monitoring trips, and the 2010 DFW IR Survey. The field work was conducted during spring/summer 2010 with a report by August 2010 ([http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820784004FY1025-20100830-environment/Oil\\_Gas\\_Tank\\_Emission\\_Measurements.pdf](http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820784004FY1025-20100830-environment/Oil_Gas_Tank_Emission_Measurements.pdf)).**
- **2008 Flash Emissions Model Evaluation – The TCEQ conducted a research project in 2008 to identify the most representative calculation methodologies for upstream oil and gas storage tank emissions. The results of the report were used by the TCEQ to improve agency guidance and policy on calculating upstream oil and gas tank emissions.**
- **2008 Drilling Rig Emissions Project – Eastern Research Group developed a drilling rig engine emissions inventory that improved on previous work by developing drilling rig engine emissions profiles, improved well activity data, and using improved NONROAD model developed emission factors. The activity data and emissions characterization data were then used to develop the drilling rig engine emissions inventory development ([http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820783985FY0901-20090715-erg-Drilling\\_Rig\\_EI.pdf](http://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5820783985FY0901-20090715-erg-Drilling_Rig_EI.pdf)).**
- **2007 Southeast Texas Compressor and Dehydrator Survey – Data were collected from 13 counties in southeast Texas from natural gas production sites to determine equipment counts of compressors and dehydrators.**
- **2007 Engine Fleet DFW Nonattainment Area Survey – This survey characterized the nonattainment DFW area engine fleet by type, load, and horsepower rating, as well as estimating nitrogen oxides emissions to evaluate the effectiveness of different control strategies.**
- **2005 Upstream Oil and Gas Tank Project – The TCEQ provided technical guidance to the Texas Environmental Research Consortium’s project that directly measured speciated VOC emissions from oil and condensate storage tanks at wellhead and gathering site tank batteries. As a result, new emissions factors were developed for upstream oil and gas storage tanks. The TCEQ used these factors to revise the 2005 area source EI for VOC, adding approximately 700,000 tons per year statewide.**

Since 2009, approximately 10 research reports related to oil and gas emissions inventories have been commissioned by the TCEQ. For individual reports, please see the following TCEQ website [http://www.tceq.texas.gov/airquality/airmod/project/pj\\_report\\_ei.html](http://www.tceq.texas.gov/airquality/airmod/project/pj_report_ei.html).

**Clarifications were made in response to this comment.**

The NPS suggested reporting oil and gas emissions separately and requested clarification if the refinery consent decree was accounted for in the oil and gas data.

**For purposes of comparison with the regional haze SIP, the agency opted to remain with the same categories used in the 2009 regional haze SIP revision. The reporting was based on sector (area, on-road and off-road mobile, and industrial point). Only the electric generating units were subdivided out for comparison because of their emission characteristics and their specific treatment from CAIR regulations and BART.**

**The consent decree was for refineries and not the upstream oil and gas exploration and production sites or the midstream facilities. The refinery emissions as well as the largest upstream and midstream oil and gas sites are reported in the industrial point source inventory. Emission reductions associated with refinery consent decrees would be reflected in reported emission inventory estimates. Future emission reductions from these agreements have not been accounted for in this SIP revision. Oil and gas emissions from the numerous smaller sites associated with exploration and production are estimated based on production and well counts in the area source category.**

#### **REASONABLE PROGRESS GOALS**

The NPS commented that Chapter 10, Table 10-2: *Reasonable Progress Goals for Class I Areas (Worst 20% Days)* in the 2009 regional haze SIP revision shows 0.7 deciview improvement at Big Bend NP and 0.9 deciview improvement at Guadalupe Mountains NP by 2018, while Appendix 8-1: *Technical Support Document for CENRAP Emissions and Air Quality Modeling to Support Regional Haze SIP*, (Appendix D) of the 2009 regional haze SIP revision predicts 16.69 deciviews at Big Bend NP and 16.35 deciviews at Guadalupe Mountains NP by 2018. (In the 2009 SIP, Chapter 10, Figures 10-1: *Glide Path for Big Bend Worst 20% Days* and 10-2: *Glide Path for Guadalupe Mountains Worst 20% Days* these 2018 estimates are truncated to 16.6 deciviews at Big Bend NP and 16.3 deciviews at Guadalupe Mountains NP.) The NPS also pointed out that the resulting improvement is 0.61 deciview (0.04 deciview/year) at Big Bend NP and 0.83 deciview (0.06 deciview/year) at Guadalupe Mountains NP by 2018.

**The NPS is correct in pointing out that the RPGs for Big Bend NP and Guadalupe Mountains NP for 20% most impaired days were set by truncating the numbers instead of rounding them. The negative declaration in Chapter 7, Section 7.2 *Negative Declaration* makes revisiting the 2018 RPGs outside the scope for this 2014 Five-Year Regional Haze SIP Revision.**

The NPCA and the Sierra Club commented that Texas' projected dates for reaching natural conditions are beyond 2064 and are flawed because the state used a novel methodology to calculate natural visibility impairment that departs from EPA's guidance. They commented that

Texas significantly underestimates the time it will take to achieve natural visibility levels in Big Bend and Guadalupe Mountains NPs. By departing from the EPA's methodology for calculating natural visibility conditions and that the proposed SIP overestimates the true level of natural visibility impairment. As a result, the 2155 and 2081 projected dates for Texas Class I areas to reach natural conditions do not reflect the return to true natural visibility conditions that the F requires (64 *Federal Register* 35714 and 35729). The NPS disagreed with Texas' projections that Big Bend and Guadalupe Mountains NPs will achieve natural conditions in 2155 and 2081, respectively. The NPS projected that using Texas' approach the state will not meet visibility goals until much later. The FS, the FWS, and the NPS requested Texas include the EPA's default glide path in the SIP.

**The commenters correctly note that the estimates of natural conditions affect the years in which the straight line projection from the base period visibility (in deciviews) through the 2018 reasonable progress goal reaches the estimated level of natural visibility conditions. However, in Texas' 2009 regional haze SIP revision, the TCEQ did follow the required methodology for developing reasonable progress goals, including the required evaluation of the reasonableness of additional controls (Section 10.3: *Consideration of Additional Pollution Control* and 10.4: *Four Factor Analysis* of Chapter 10: *Reasonable Progress Goals*).**

**All estimates of natural visibility conditions are, in fact, estimates. The default estimates suggested by the EPA are estimates. They do not represent "true" natural visibility conditions. The estimates of natural conditions developed in preparing the Texas 2009 regional haze SIP revision were based on analysis of the conditions and influences affecting Big Bend and Guadalupe Mountains NPs rather than analysis for broad areas of the United States. The commenters did not note that the federal regional haze rule (40 CFR §51.308(d)(3)) places with each state the ultimate responsibility for calculating natural conditions for Class I areas within the state. The EPA default glide path is available in Appendix 8-1: *Technical Support Document for CENRAP Emissions and Air Quality Modeling to Support Regional Haze SIP*, (Appendix D) of the 2009 SIP ([www.tceq.texas.gov/assets/public/implementation/air/sip/haze/TSD\\_APPEND\\_D.pdf](http://www.tceq.texas.gov/assets/public/implementation/air/sip/haze/TSD_APPEND_D.pdf)).**

**Texas did use the required methodology for projecting the dates to reach natural conditions. The TCEQ notes that the federal regional haze rule-required methodology does not consider impacts from international transport, which is beyond both Texas' and the EPA's authority or ability to practically control.**

**Finally, the EPA has approved regional haze SIP revisions from California, Colorado, and South Dakota, which each set 2018 RPGs leading to projected achievement of natural conditions in years beyond 2064: California's Desolation Wilderness Area's goal to reach natural conditions is the year 2307 (76 FR 13944); Colorado's Black Canyon of the Gunnison National Park's goal to reach natural conditions is the year 2119; and South Dakota's Badlands' goal is the year 2265. At least 15 Class I areas are projected to reach natural conditions after the target date of 2064 (76 FR 13944). The NPCA website, reviewed in January 2014, shows an interactive US map that if you hover over each site, you can get the projected date the state has calculated natural conditions (or "projected clean air date"). To get more details, the right border of the NPCA web page has links to fact sheets on 10**

**national parks that give details like EPA approval of plans and *Federal Register* notices (<http://www.npca.org/protecting-our-parks/air-land-water/clean-air/cleanair4parks.html>). No changes were made in response to these comments.**

## **ADEQUACY**

The NPCA and the Sierra Club stated that available data indicated that Texas's power plants will continue to cause visibility hot spots at multiple Class I areas even if power plants reduce their emissions to the allocations allowed under CAIR/CSAPR. In July 2013, the TCEQ was informed the EPA had an analysis done that showed 38 Texas point sources were responsible for a high level of the visibility impairment at Big Bend, Guadalupe Mountains, Wichita Mountains, and Caney Creek Class I areas. The EPA's analysis showed that even when CAIR reductions were accounted for, these power plants continued to impair visibility at the Class I areas. Controls like wet flue gas desulfurization, selective catalytic reduction, and various scrubber upgrades would improve visibility. The NPS, the NPCA and the Sierra Club commented the TCEQ should evaluate pollution controls and the corresponding cumulative visibility benefits for each of these sources and require appropriate reasonable progress controls.

**The commission appreciates these comments but considers them outside of the scope for this 2014 Five-Year Regional Haze SIP Revision. As long as the determination required under 40 CFR §308(h) (64 FR 35769) is a negative declaration, further revision of the existing implementation plan is not needed at this time. As shown in this SIP revision in Chapter 7: *Adequacy of Current Regional Haze SIP*, the TCEQ has determined that further revisions to the existing SIP were not needed at this time for Texas or other states with Class I areas affected by emissions from Texas to meet all established reasonable progress goals.**

**In the 2009 regional haze SIP revision, the TCEQ did consider the cumulative impacts of multiple sources and reported the results of this consideration in Chapter 10 of the 2009 regional haze SIP revision. The TCEQ used areas of influence and used the \$2,700 per ton reasonableness threshold used in the BART procedures to select the additional controls that would be the most cost-effective and effective for producing additional visibility improvement. The TCEQ determined in the 2009 regional haze SIP revision that over \$300 million in additional control costs but producing less than 0.5 deciview of improvement at each Class I area would be unreasonable.**

The NPS disagreed with Chapter 5, Section 5.6 *Summary Assessment* that the TCEQ demonstrated that the state's current strategy was adequate for Class I areas in Texas and outside Texas to meet all established reasonable progress goals. The NPCA and the Sierra Club commented that the proposed 2014 Five-Year Texas Regional Haze SIP Revision fails to comply with the federal regional haze rule because: 1) no Texas sources had to install equipment due to regional haze rule, but nearby states must; 2) Texas sources disproportionately impair visibility in Oklahoma and Arkansas; and 3) Texas fails to meet RPG by 2064.

The NPCA and the Sierra Club commented the TCEQ's approach to the five-year review is not acceptable in regards to Wichita Mountains, Caney Creek, and Upper Buffalo, where Texas power plants are the predominant contributor to regional haze and responsible for more haze pollution than Oklahoma and Arkansas point sources. The NPCA and the Sierra Club agreed

with the NPS comments that it was difficult to believe that Texas power plants cumulative emissions do not impair visibility in Class I areas in Texas and nearby states. The commenters contended that EGU sources in Texas, like Martin Lake and Big Brown, by themselves emit almost as much as the ten plants in Arkansas and Oklahoma. They further contended that Texas power plants have at least as much or more emissions per distance (Q/d) ratios to both Wichita Mountains and Caney Creek than do Oklahoma or Arkansas power plants. The NPCA and the Sierra Club commented that Texas sources cause or contribute to visibility impairment at many other out-of-state Class I areas.

**The commission disagrees with the comment that no Texas sources have had to reduce emissions because of the federal regional haze rule. A number of Texas sources shutdown BART units while others chose to reduce emissions by dropping below the threshold impact for conducting a full BART review rather than carrying out a BART analysis (specific sources are listed in Table 9-9: *Post-BART Emissions Reductions at Texas Sources*, page 9-21 in the 2009 regional haze SIP revision and in the follow table). The details are in Chapter 9: *Best Available Retrofit Technology* of the Texas' 2009 regional haze SIP revision.**

**Regarding EGUs, CAIR is being implemented in Texas. CAIR is a cap and trade rule and EGUs are subject to caps, which step down significantly in 2015. EGUs are also subject to EPA's Mercury and Air Toxics Standards (MATS) requirements and it is not yet known which units will choose which controls or other means of compliance with CAIR, MATS, and other applicable requirements including consent decrees.**

**The commission notes that neither the federal regional haze rule nor the EPA has defined what amount of impairment in inverse megameters or what percentage of total measured impairment constitutes a significant contribution to visibility impairment at a Class I area.**

**Table 9-9: Post-BART Emissions Reductions at Texas Sources<sup>1</sup>**

Regulated Entity Number	Source	Reason <sup>2</sup>	Account <sup>3</sup>	NO <sub>x</sub> Reduced from Baseline 2002 (tpy)	SO <sub>2</sub> Reduced From Baseline 2002 (tpy)	PM Reduced from Baseline 2002 (tpy)
RN100211507	Capitol Cement	Shutdown wet kiln	BG0045E	1,328	1,193	100
RN100227016	Dow/Celanese	NSP permit and transfer of ownership	HG0126Q	694	0	0
RN102450756	ExxonMobil Oil <sup>4</sup>	Permit revision	JE0067I	2.7	290	0
RN102609724	Norit Americas Inc	Permit revision	HH0019H <sup>5</sup>	16.6	5.4	0
RN100216621	Regency Tilden Gas (formerly Enbridge Pipeline)	Permit revision	MC0002H	2	2,276	0.2
RN102551785	Targa (formerly Dynegy Midstream Services)	Shutdown all BART equipment	CY0019H	336	0.3	0.5
RN102561925	The Goodyear Tire and Rubber Co	Permit revision	JE0039N	89.1	11.3	2.9
RN100213685	Valence Midstream Ltd	Shutdown	HR0018T	247.1	2,742.5	5.6
RN100218601	Vetrotex America St. Gobain	Shutdown	WH0014S	62.6	16.4	59.0
	<b>Total=9,785.2 tpy</b>			2,778.1	6,535.9	168.2

1. This table was created for use in the Texas 2009 regional haze SIP revision.
2. Further details can be found in Appendix 9-11: *Documentation of Emission Reductions* at [http://www.tceq.texas.gov/assets/public/implementation/air/sip/haze/App9\\_11\\_rev.pdf](http://www.tceq.texas.gov/assets/public/implementation/air/sip/haze/App9_11_rev.pdf)
3. The first two letters in account number are the abbreviation for the source's county location.
4. ExxonMobil estimates are based on reductions from the 2002 EI and pre- and post-BART hourly emissions.
5. Company has permit limiting combined SO<sub>2</sub> and NO<sub>x</sub> to 841 tpy on previously grandfathered BART sources. This limit is lower than actual emissions in previous years. For example, the facility emitted 1,266 tpy of NO<sub>x</sub> and SO<sub>2</sub> in 1990.

The NPCA and the Sierra Club commented that this five-year progress report demonstrated that Texas violates 40 C.F.R. § 51.308(d)(1) because visibility conditions at Big Bend NP degraded by 0.1 deciview on the least impaired days from baseline period to the 2005 through 2009 period. The NPCA and the Sierra Club disagreed with Chapter 3: *Assessment of Visibility* that there was a lack of statistically significant change in visibility impairment on the 20% least impaired days at Big Bend NP. The EPA commented that after incorporating more recent data if Texas confirms that Big Bend NP still experiences a slight degradation on the 20% best days, Texas should include this in conclusion under section 51.308(g)(6) and (h) regarding Big Bend NP.

**The commission notes that for the latest five-year period, 2007 through 2011, the average visibility impairment on the 20% least impaired days is 5.6 deciviews, which is less impaired than the average impairment on the 20% least impaired days during the 2000 through 2004 base period. The TCEQ disagrees with the comment that the statistical significance of a change is not pertinent. The variation of five-year averages between slight degradation and slight improvement for the 20% least impaired days is to be expected because of the relatively large year-to-year fluctuation in annual deciview levels. For the most recent period with available data, 2007 through 2011, the visibility for the 20% least impaired days at Big Bend NP was improved from the base period, 2000 through 2004, by 0.2 deciview.**

The EPA and the NPS commented that Texas should further evaluate the visibility conditions observed on the 20% worst days and identify the changes in contributions to visibility impairment for each species that impacts visibility. They provided as an example the difference in visibility impact from sulfate should be assessed to provide an understanding of how reductions in sulfate emissions are affecting visibility. A similar analysis should be performed for the 20% best days. The NPS commented that Texas should provide similar charts for Class I areas outside its borders.

**The commission does not agree that the suggested level of analysis is required for the five-year progress report in this 2014 Five-Year Regional Haze SIP Revision, but Texas has included discussion and some figures, in Chapter 3, Section 3.2: *Assessment of Visibility Conditions* that track pollutant contributions to regional haze at Big Bend, Guadalupe Mountains, Carlsbad Caverns, Wichita Mountains, Caney Creek and White Mountains Class I areas. The decreases in sulfate, the largest contributor to visibility impairment on the 20% most impaired days at these Class I areas, are consistent with the decreases in SO<sub>2</sub> emissions in Texas and other areas subject to CAIR or BART. Changes were made in response to this comment.**

The EPA and the NPS suggested that Texas and New Mexico should consult one another to establish consistent natural condition estimates for Carlsbad Caverns and Guadalupe Mountains NPs.

**The commission disagrees with the implied suggestion that Texas' best estimate of natural conditions for Guadalupe Mountains Class I Area and New Mexico's choice of natural conditions estimates for Carlsbad Caverns Class I area need to be reconciled. Each state is responsible for choosing the best estimate of natural conditions for its Class I areas (64 FR 35766):**

**(2) Calculations of baseline and natural visibility conditions. For each mandatory Class I Federal area located within the State, the State must determine the following visibility conditions (expressed in deciviews)...**  
**(iii) Natural visibility conditions for the most impaired and least impaired days. Natural visibility conditions must be calculated by estimating the degree of visibility impairment existing under natural conditions for the most impaired and least impaired days, based on available monitoring information and appropriate data analysis techniques ...**

**For these reasons, no changes were made as a result of this comment.**

The NPCA and the Sierra Club commented Texas power plants emit far greater quantities of SO<sub>2</sub> and NO<sub>x</sub> pollution than Oklahoma and Arkansas power plants. The commenters stated that Texas power plants emitted more than 25% more NO<sub>x</sub> pollution than all the power plants in Oklahoma and Arkansas combined, and Texas emitted more than double the amount of SO<sub>2</sub> pollution than both those states combined. As the NPS explained in its comments, given the large quantities of NO<sub>x</sub> and SO<sub>2</sub> pollution from Texas's power plants, the commenter considers it difficult to believe that these cumulative emissions do not impair visibility in Class I areas in Texas and nearby states. They further state the two largest sources in Texas - Martin Lake and Big Brown plants - emit almost as much as the ten plants in Arkansas and Oklahoma. Texas power plants have equivalent or larger emissions per distance (Q/d) ratios to Wichita Mountains and Caney Creek than Oklahoma and Arkansas power plants.

**The commission documented in Chapter 11: *Long-Term Strategy to Reach Reasonable Progress Goals* of the 2009 regional haze SIP revision the results of the CENRAP modeling analysis for 2002 and 2018, which did the best apportionment available of Texas' contributions to PM components and visibility impairment at the Class I areas affected by emissions from Texas. The TCEQ notes that the 2018 projections show that Texas' impacts at Wichita Mountains and Caney Creek will be reduced in proportion to the reductions in impacts from all other sources. The TCEQ notes that power plants in Texas have been subject to state requirements for NO<sub>x</sub> and SO<sub>2</sub> reductions since May 1, 2003 - long before the first phase of CAIR requirements came into effect in 2009 and 2010. The second phase of CAIR requirements should result in substantial emission reductions when CAIR, or a subsequent program, goes into effect in 2015. The power plants in Oklahoma were not subject to CAIR requirements, so Oklahoma's EGUs were subject to BART requirements.**

The NPCA and the Sierra Club commented that the TCEQ attempted to undervalue the IMPROVE monitoring data by claiming year-to-year variation, international emissions, dust storms, or transport of dust from dry lake beds in Mexico could have produced the slight increase in visibility impairment. While these hypotheticals may contribute to visibility degradation at Big Bend NP, the proposed SIP's failure to require any pollution controls could also be the cause of this visibility degradation. The commenters understood the five-year average of annual visibility impairment from 2005 through 2009 was designed to reduce unusual annual fluctuations. The commenters disagreed with the state's suggested causes of the visibility degradation. The commenters stated that RPGs must provide for improvement in visibility on the most impaired days and ensure that visibility is not degraded on the best days.

**The commission disagrees with these comments. IMPROVE data for 2010 and 2011 are now available for analysis, and the data show that the most recent five-year average visibility impairment for the 20% least impaired days is improved compared to the base period. The TCEQ notes that the result of random year-to-year variation does lead to some random variation in five-year average visibility impairment but that the random variation in five-year averages is smaller than the year-to-year variation.**

The NPCA and the Sierra Club commented that Texas needs a valid and legally-defensible regional haze SIP in place by the end of 2014 to comply with the requirements of the regional haze program. The commenters think Texas' proposed SIP revision violates the federal regional haze rule; for example, Texas does not meet natural conditions by EPA's default year of 2064, and the SIP does not have any BART sources. The commenters requested TCEQ withdraw this 2014 Five-Year Regional Haze SIP Revision as the groups consider the plan inadequate.

**The commission disagrees with this comment. As discussed in response to similar individual comments, the 2009 regional haze SIP revision and this 2014 Five-Year Regional Haze SIP Revision both meet the requirements of the federal regional haze rule. The commission considers that the commenter has misinterpreted the requirements of that rule in reaching the conclusion that Texas' regional haze SIP provisions do not meet the regional haze rule requirements. The federal regulations give each state the prerogative to determine natural conditions and BART following legal guidelines as noted in the following two citations.**

- **Each state is responsible for determining natural conditions. The EPA supplies a default natural condition; however, if the state chooses to, each state may calculate the natural conditions for each site. Texas has calculated the natural conditions for each Class I area in Texas and will not be using the EPA recommended default of natural conditions. Each state is responsible for choosing the best estimate of natural conditions for its Class I areas (64 FR 35766):**

**(2) Calculations of baseline and natural visibility conditions. For each mandatory Class I Federal area located within the State, the State must determine the following visibility conditions (expressed in deciviews)...  
(iii) Natural visibility conditions for the most impaired and least impaired days. Natural visibility conditions must be calculated by estimating the degree of visibility impairment existing under natural conditions for the most impaired and least impaired days, based on available monitoring information and appropriate data analysis techniques ...**

- **Each state is responsible for its own BART determinations. Texas determined that the state has no BART sources, and Texas is a CAIR state and is relying on CAIR to be better than BART for EGUs in Texas. 40 CFR 51.308(e) includes the Best Available Retrofit Technology requirements for regional haze visibility impairment:**

**The State must submit an implementation plan containing emission limitations representing BART and schedules for compliance with BART for**

**each BART-eligible source that may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area, unless the State demonstrates that an emissions trading program or other alternative will achieve greater reasonable progress toward natural visibility conditions.**

The NPS requested that the TCEQ discuss in Chapter 5: *Assessment of Reasonable Progress Goals* the CENRAP air quality modeling using the particulate source apportionment test (PSAT), which estimated states' contributions to sulfate and nitrate at each Class I area. The commenter noted that Texas contributed up to 28% of the sulfate at neighboring Class I areas and included charts apportioning contributions to visibility impairment at Big Bend and Guadalupe Mountains NPs. The NPS requested that Texas provide similar charts for Class I areas outside of the state. The FS requested that the impacts from Texas sources, which are still divided into three separate areas, be combined in new charts to show Texas full impact compared to the impacts of other states.

**The commission appreciates this request but considers that discussion of Particulate Matter Source Apportionment Technology (PSAT) modeling in Chapter 8: *Modeling Assessment of Texas' 2009 regional haze SIP revision* was adequate. No changes were made in response to these comments.**

The NPS requested additional discussion of Texas' contribution to Class I areas outside Texas. The NPS, the NPCA and the Sierra Club disagreed that the TCEQ has demonstrated that the existing SIP was adequate for continued progress toward established reasonable progress goals in other states. The NPCA and the Sierra Club commented that the TCEQ should revise the SIP so Texas and other states Texas impacts will be on the glide path by 2064.

The NPS requested that TCEQ compare current visibility conditions to the 2018 goals for Class I areas in Texas and those Class I areas impacted by Texas to show that reductions are sufficient and on track to meet reasonable progress goals by 2018. The NPS requested that the four figures in Chapter 5 of the proposed SIP revision include the full glide paths to natural visibility conditions out to 2064 and not just the last 10 years; also, the NPS requested Texas use the same vertical axis for the 20% worst and 20% best visibility days and show the average deciview for the 20% worst days for each year and rolling five-year averages.

**These comments may be based on the assumption that the federal regional haze rule requires straight line improvement in visibility from the base period to the 2018 RPGs for each affected Class I area. Instead, the appropriate test is whether visibility in 2018 at each Class I area meets the reasonable progress goal set for it and, if the visibility fails to meet the 2018 RPG, whether the emissions from a state had a greater contribution to visibility impairment at the Class I area than the contribution projected when the RPG was set.**

**There is considerable year-to-year variation in the five-year average visibility impairment at each Class I area, and, because of this variation, each Class I area may have its five-year visibility average (both 20% most impaired days and 20% least impaired days) move from one side to the other of the straight line interpolated from the base-period visibility impairment to the 2018 RPG for the most and 20% least impaired days. While it is tempting for the EPA and others to**

**compare the year-by-year values for average five-year average visibility impairment to the straight line drawn from the base period visibility to the 2018 RPG, no such straight line reduction is required by the federal regional haze rule. The requirement for the five-year progress report is to assess whether the 2018 RPGs set by the states for their Class I areas will be met. Texas has addressed that requirement in this 2014 Five-Year Regional Haze SIP Revision. Substantial additional reductions in EGU NO<sub>x</sub> and SO<sub>2</sub> emissions are required by CAIR for 2015. Also, the EPA MATS rule requirements take effect April 16, 2015 (or 2016 if companies are granted a one-year extension). The MATS rule emission limitations are new requirements that were not used to project progress to 2018 or to set RPGs for the CENRAP states. The requirements include an acid gas emissions limit. Where hydrochloric acid gas emissions exceed the MATS limit, some EGUs may choose control by dry sorbent injection, which would also accomplish partial SO<sub>2</sub> removal. It is not possible to reliably predict how EGU owners will choose to meet the MATS or other overlapping requirements, including consent decree requirements. Because federal regional haze rule requirements are not needed for reductions at this time and the non-linear nature of reductions per year in emissions allowable for EGUs (the source of most SO<sub>2</sub> emissions in Texas), it is neither legally required nor technically appropriate to judge the adequacy of the Texas regional haze SIP provisions by comparing visibility improvement at affected Class I areas to a straight line (drawn in deciview space) from the base period visibility in 2002 to the 2018 reasonable progress goal for each Class I area. The TCEQ notes, however, that for each Class I area affected by Texas' emissions, it has included the 2007 through 2011 average five-year average visibility impairment values for the 20% most impaired days in Chapter 5 of this 2014 Five-Year Regional Haze SIP Revision. For the 2007 through 2011 period, out of the four Class I areas to the northeast of Texas that had 2005 through 2009 average values above the straight line from 2002 impairment to the respective 2018 RPGs, three of the four areas had 2007 through 2011 averages below the interpolation line. The average for one Class I area in New Mexico - White Mountain - went from 0.4 deciview below the line for 2005 through 2009 to 0.4 deciview above the line for the 2007 through 2011 average. Because of the substantial variation in year-to-year values of the five-year averages for the 20% most impaired days and the 20% least impaired days, one would expect that with a linear decrease in visibility impairment, and being on schedule to meet 2018 RPGs, about half of the Class I areas would be below and the other half above the straight line interpolation from the base period represented by 2002 to 2018 reasonable progress goal set by the state. For an example, see Chapter 5, Figure 5-1: *Visibility Improvement at Big Bend National Park for 20% Most Impaired Days* in the final version of the Texas 2014 Five-Year Regional Haze SIP Revision.**

**There is no requirement for straight line linear decrease in visibility impairment for meeting 2018 RPGs. However, the 20% most impaired days for 11 of the 13 Class I areas affected by Texas have data that are below the straight extrapolation line adds to weight of evidence that Texas regional haze SIP provisions are adequate. The additional, enforceable emission reductions documented in Chapter 2 of this 2014 Five-Year Regional Haze SIP Revision that go beyond those included in Texas' 2009 regional haze SIP revision add further weight of evidence**

**for the adequacy of Texas' SIP provisions to allow each Class I area Texas' emissions impact to reach its 2018 RPGs.**

**The commission considers that the 2009 regional haze SIP revision and the every-10-year major regional haze SIP revisions that set RPGs for the next 10 years are the place to display the glide paths to 2064 natural conditions and the extrapolated lines from base period visibility conditions through the next 10-year RPGs with extrapolations to the year in which the extrapolated line would reach natural conditions.**

The NPCA and the Sierra Club made several references to Dr. Thompson's modeling report, noting that large selected Texas sources do impact visibility at Big Bend, Guadalupe Mountains, Wichita Mountains, and Caney Creek Class I areas. The Thompson report concluded that eliminating several large sources would reduce visibility impairment impacts at the nearby Class I areas.

**The Thompson report discussed modeling of the CSAPR, a possible CAIR replacement program. The Thompson report's purpose was to estimate the impacts of emissions associated with four coal-fired EGUs located in Texas, on visibility at four Class I areas in Texas, Arkansas and Oklahoma. The report suggested Texas EGUs make greater emissions reductions specifically at Welsh, Monticello, Big Brown, and Martin Lake.**

**The commission considers that the CAIR program is an appropriate mechanism for determining requirements for emissions reductions and a cost-effective way of making decisions about reductions in the visibility impairing pollutants SO<sub>2</sub> and NO<sub>x</sub> from EGUs for the progress of regional haze. It is possible that the EPA will propose and adopt a replacement for CAIR in the future; regardless, all states, including Texas will continue to be required to address the issue of transported emissions, including visibility impairing pollutants SO<sub>2</sub> and NO<sub>x</sub>. The TCEQ appropriately considered in its 2009 regional haze SIP revision the reasonableness of requiring additional emission reductions beyond those required by CAIR, BART for non-EGU source, other EPA emission reduction programs, and previously TCEQ adopted emission reduction requirements.**

**In Chapter 2, page 2-13, information has been added about two announced and planned for EGU shutdowns. Welsh Unit 2 shutdown is part of a consent decree, while the Deely Boiler shutdown has been announced by the company. These announced shutdowns have not yet resulted in enforceable reductions; however, they will likely result in future reductions that can be accounted for in future regional haze planning periods.**

The EPA, the NPCA and the Sierra Club commented that visibility at Wichita Mountains in Oklahoma has degraded by 0.1 deciview on the least impaired days, according to Chapter 5 of this 2014 Five-Year Regional Haze SIP Revision. They suggest that the TCEQ attempts to downplay such degradation by claiming the change is statically insignificant based on the t-test, to which they disagree. The EPA commented that Texas sources impact visibility at the Wichita Mountains more than Oklahoma sources. The EPA stated the Oklahoma SIP predicts improvement on the 20% best days for the Wichita Mountains if Texas were to adopt the

controls discussed in the 2009 regional haze SIP revision. The EPA suggested that Texas should consider these controls again for sections 51.308(g)(6) and (h) regarding the Wichita Mountains.

**The commission disagrees with the comment that the t-test is not appropriate for determining whether two averages are statistically different. As stated in this 2014 Five-Year Regional Haze SIP Revision, there is variation from year-to-year in the five-year average visibility impairment for the 20% least impaired days. The five-year average for the most recent five-year period (2007 through 2011) shows improved visibility for both Big Bend NP and Wichita Mountains compared to the five-year base period (2000 through 2004).**

The FS commented that reductions stated in the proposed revision vary for each area, leading to pollutant control inconsistencies and a level of reductions lower than would otherwise be made. If one section can reduce emissions to a particular level they should all be able to reduce emissions to that same level, and not allow some areas to have higher emission levels.

**The emissions limitations on sources in East Texas are more stringent due to more ozone nonattainment areas in that geographic area. West Texas only has one nonattainment area in one county. The TCEQ is not aware of a requirement in the federal regional haze rule that the whole state must limit emissions in the same way.**

#### **CONSULTATION**

The FS commented that Texas failed to adequately consult with the FS per the consultation with FLMs provisions in 40 CFR §51.3-8 (i).

**Commission staff contacted Bret Anderson, the designated FS contact for the Texas region, as instructed. Texas did not intend to leave out any FLM, and followed the FS chain of command as was understood in developing the progress report shown in this 2014 Five-Year Regional Haze SIP Revision. The TCEQ added Forest Service staff Judy Logan and Charles Sams for further outreach and both were present for the two FLM consultation calls regarding this SIP revision.**