



# United States Department of the Interior

## NATIONAL PARK SERVICE

Air Resources Division

P.O. Box 25287

Denver, CO 80225-0287

IN REPLY REFER TO:

N3615 (2350)

August 20, 2013

Ms. Margaret Earnest  
Office of Air  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin, TX 78711-3087

Dear Ms. Earnest:

Thank you for the opportunity to review and comment on the Texas Commission on Environmental Quality (TCEQ)'s proposed Five Year Regional Haze State Implementation Plan (SIP) Revision. The proposed Five-Year Review demonstrates that Texas has achieved emissions reductions from source sectors included in the Long Term Strategy in the Texas Regional Haze SIP. However the Review does not demonstrate that Texas is implementing all the reasonable control measures necessary to reduce Texas' proportional contribution to visibility impairment at Class I areas in Texas and impacted by Texas. Our 2008 comments on the draft SIP requested more complete justification on why Texas was relying on existing state and federal requirements and why no additional controls were required for regional haze. Since EPA has not taken action on Texas' 2009 Regional Haze SIP, we do not know if EPA accepts that Texas is implementing all reasonable controls measures.

Below we compare TCEQ' review to the requirements of 40 CFR 51.308(g) and EPA's 2013 General Principles for the Five-Year Regional Haze Progress Report. In our attached comments we discuss concerns that we raised with the 2008 draft SIP that were not addressed in the 2009 SIP submittal to EPA.

### **Visibility Trends**

In Chapter 3, TCEQ provides a summary table showing that visibility at Big Bend and Guadalupe Mountains National Parks (NP) on the 20% worst days improved slightly between the baseline period 2000-2004 and the subsequent 5 year period 2005-2009. On the 20% best days, visibility was either slightly better or slightly worse than the baseline period. We request that Texas discuss the pollutant contributions to visibility impairment and how those contributions

have changed over the decade. 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. TCEQ has included the IMPROVE report of 2005-2009 data as an appendix. We request that TCEQ discuss in the progress report the pollutant contributions for the Class I areas in Texas and impacted by Texas emissions, so that the reader understands how the emissions reductions discussed in Chapter 2 relate to visibility improvement.

EPA's 2013 General Principles for the Five-Year Regional Haze Progress Report instructs states to use the most recent IMPROVE data. IMPROVE data is currently available through 2011. For many Class I areas, including Big Bend and Guadalupe Mountains National Parks, visibility improvement is greater in the most recent 2007-2011 period than the 2005-2009 period. We request that TCEQ discuss the IMPROVE data through 2011.

### **Best Available Retrofit Technology (BART)**

In Chapter 2, TCEQ asserts that none of the 125 potentially BART-eligible sources were required to install controls for BART because permitted emissions do not contribute to an impact at a Class I area greater than a 0.5 dv contribution threshold. As we commented in 2008, given the large number of sources, TCEQ should have considered the cumulative impacts of these sources and used a lower threshold to consider controls for an individual source. Otherwise, the cumulative impact of these sources is not addressed.

TCEQ asserts that to date, under the requirements of the Clean Air Interstate Rule (CAIR), Electric Generating Units (EGU) in Texas have reduced sulfur dioxide (SO<sub>2</sub>) emissions by 23% and nitrogen oxide (NO<sub>x</sub>) emissions by 44%. We request that TCEQ provide additional source specific information that indicates when sources installed controls or when they will install controls. From the information provided, we cannot tell if Texas is on track to meet the EGU reductions included in the CENRAP and WRAP modeling that was used to establish reasonable progress goals in Texas and neighboring states.

### **Status of Control Measures**

Chapter 2 discusses consent decrees that have been implemented after the CENRAP modeling and that represent additional emissions reductions that were not included in the reasonable progress goals. However, it is not clear if the inventories in Chapter 4 include the emission reductions from these latest consent decrees and rule requirements (e.g. Owens Glass, MATS rule), or only those controls included in the CENRAP inventories. For example, are emissions reductions from the Texas Emissions Reduction Plans and grants programs (Chapter 2.9) included in inventories reported in Chapter 4? Please clarify.

Section 2.6.1 should be updated to include latest EPA and court actions on CAIR and the Cross State Air Pollution Rule.

### **Emissions Inventory**

TCEQ presents emissions inventories for 2005, 2008, and 2011. We commend TCEQ for including the 2011 National Emissions Inventory data. Please provide tables with the 2002 and 2018 inventory data from the 2009 SIP so that the reader can compare previous and current

inventory projections. We agree that there are differences in inventory assumptions between years that complicate interpretation; these differences should be identified.

As discussed in the attached comments, in its 2009 SIP submittal TCEQ noted that CENRAP overestimated SO<sub>2</sub> emissions from areas sources by 96,000 tons per year (tpy). It appears that in the progress report, TCEQ did not correct this error in Figure 4-1 for 2002 and 2018 SO<sub>2</sub> emissions. Please clarify.

According to the Progress Report (pp 4-5):

The 2008 area source inventory was enhanced with additional categories as part of the commission's initiative to improve inventory estimations. In 2005, limited categories were used for the oil and gas inventory. The 2008 inventory was expanded with emissions estimates from additional oil and gas categories and improved fertilizer and livestock categories. These improvements combined with an increase in oil and gas activity increased the 2008 VOC emissions estimates. The improved agricultural estimates resulted in a decrease in the ammonia estimates.

Why did area source emissions of NO<sub>x</sub> and VOC decrease between 2008 and 2011? Please present oil and gas emissions separately from all area source emissions so that the reader can understand the contributions from oil and gas. In other states, emissions due to oil and gas are increasing, often in the same remote and rural areas where national parks are located. Please present data specific to oil and gas and clarify if these data account for the refineries consent decree.

### **Natural Visibility Conditions**

In its 2009 SIP submittal, TCEQ proposed revisions to the default natural visibility conditions. In the proposed Five-Year Review, TCEQ does not discuss natural conditions. Visibility improvement in Figures 5-1 through 5-4 is truncated to the period 2002-2018 and does not show the reader the full glidepath to natural visibility conditions by 2064. Please use the same vertical axis for the 20% worst and 20% best visibility days in Figures 5-1 through 5-4, including glidepaths to 2064. Please show the average deciview for the 20% worst days for each year and rolling 5-year averages.

In our attached comments we illustrate both the default and natural conditions. TCEQ estimated a higher value for natural visibility conditions on the 20% worst days than the EPA default value. Although this resulted in a shallower glidepath than the default, the CENRAP CMAQ modeling upon which Texas relied still projected that Class I areas in Texas would not meet the revised uniform rate of progress by 2018.

### **Reasonable Progress**

Even after implementation of CAIR, in 2011 Texas EGU emitted 433,782 tons per year of SO<sub>2</sub> and 143,782 tons per year of NO<sub>x</sub>. It is difficult to believe that these cumulative emissions do not impair visibility in Class I areas in TX and nearby states and that additional reductions beyond those required by CAIR are not reasonable compared to costs borne by EGU in other

states. 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.

**Summary**

We disagree with Section 5.6, Summary Assessment, that TCEQ has demonstrated that Texas' current strategy is adequate for Class I areas in Texas and in areas affected by Texas to meet all established reasonable progress goals. We request 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. What additional emission reductions were included in the CENRAP modeling that are enforceable but have not been implemented?

We request that TCEQ discuss in Chapter 5 the CENRAP air quality modeling using the particulate source apportionment test (PSAT). This analysis estimated states' contributions to sulfate and nitrate at each Class I area. Texas contributed up to 28% of the sulfate at neighboring Class I areas. In the attached comments, we have included charts apportioning contributions to visibility impairment at Big Bend and Guadalupe Mountains NPs, and request that Texas provide similar charts for Class I areas outside its borders.

Texas has not demonstrated that implementation of existing Texas and federal rules are the only emission reductions that are reasonable to implement by 2018 to satisfy the requirements of the regional haze rule. Without additional discussion of Texas' contribution to Class I areas outside Texas, we cannot agree that TCEQ has demonstrated that the existing SIP is adequate for continued progress toward established reasonable progress goals in other states.

We appreciate the opportunity to work closely with Texas to improve visibility at Class I national park units. If you have questions, please contact Pat Brewer at 303-969-2153 or Don Shepherd at 303-969-2075.

Sincerely,



Susan Johnson  
Chief, Policy, Planning, and Permit Review Branch

Enclosure

cc:

Joe Kordzi  
EPA Region 6  
1445 Ross Ave., Dallas, TX 75202-2733

**NPS Comments on the 2009 Texas Regional Haze SIP not addressed in the 2013 draft  
Regional Haze Progress Report**  
August 19, 2013

In its 2009 SIP submittal, Texas noted that:

The area source SO<sub>2</sub> emissions used by the CENRAP in their modeling are significantly higher than the 15,633 tons per year (tpy) reported by the TCEQ. The difference is industrial and residential coal combustion which was erroneously included in the CENRAP inventory. The TCEQ has been working with CENRAP to correct this error for future modeling, but there was not sufficient time to remodel with the more accurate TCEQ-supplied inventory. CENRAP's modeled emissions estimate is not expected to significantly impact visibility estimates for 2018 because of the relatively small contribution from these Texas sources on Class I areas.

We request that Texas update this statement, "TCEQ has been working with CENRAP to correct this error for future modeling..."

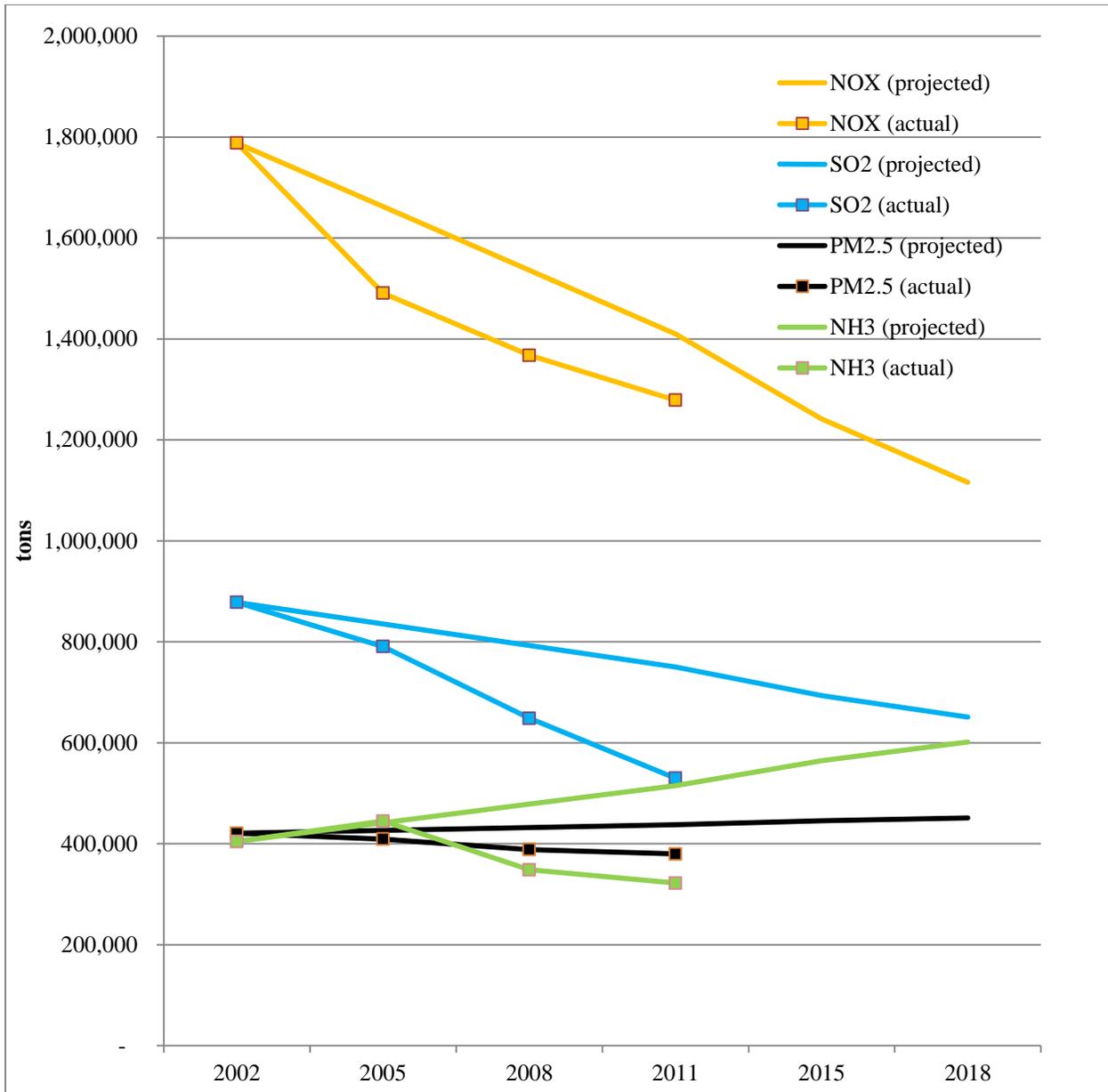
CENRAP modeled 111,853 tpy of SO<sub>2</sub> from area sources, and 974,457 tpy SO<sub>2</sub> from all sources in 2002. The 96,000 tpy error is almost 10% of the SO<sub>2</sub> total. Figure 4-1 of the Progress Report appears to have used the erroneous value for 2002 SO<sub>2</sub>; if that is true, then Figure 4-1 should be revised to use the correct value.

CENRAP appears to have carried the area source SO<sub>2</sub> overestimation into 2018<sup>1</sup> by estimating 114,138 tpy; this is a 2% increase in these incorrect emissions. Applying that same 2% increase to the correct 2002 area source SO<sub>2</sub> emissions yields 15,952 tons, a difference of 98,156 tpy, This corrected value should also be reflected in Figure 4-1 of the progress report.

Although Tables 4-1 thru 4-3 in the Progress Report show much lower (corrected?) values for area source SO<sub>2</sub> between 2005 and 2011, the 2002 and 2018 endpoints in Figure 4-1 continue to show the overestimated area source SO<sub>2</sub> estimates. We also question the value of including CO in Figure 4-1 because it causes the vertical axis to be compressed. Instead, we suggest showing ammonia emission trends because background ammonia concentration is a critical factor in particle formation. We have included below an example of how Figure 4-1 might look with corrected estimates for area source SO<sub>2</sub> and ammonia emissions (instead of CO). Our results indicate that actual emissions are tracking below the future projections.

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<sup>1</sup> According to Texas, "The CENRAP projected the 2002 base year emissions for Texas and other central states to the 2018 future planning year primarily using the Economic Growth Analysis System (EGAS5) for non-electric generating unit point sources, area sources, and non-road mobile sources..."



Total Emissions corrected to remove the CENRAP overestimate of SO2 area sources

In its 2009 “Response to Comments” document, Texas stated:

The EPA, NPS, and FWS questioned that CENRAP’s modeled emissions estimate was not expected to significantly impact visibility estimates for 2018 because of the relatively small contribution from these Texas sources on Class I areas. The EPA, NPS and FWS commented that data presented in the SIP narrative suggested that Texas sources’ emissions constitute the majority of visibility impact at the Wichita Mountains Salt Creek, and Caney Creek; and indicated that Texas sources’ emissions have a great impact at White Mountain. The EPA, NPS and FWS asked that the TCEQ explain the specific difference between the reported TCEQ sulfur dioxide inventory and the CENRAP modeled inventory as well as the rationale for why TCEQ considers Texas’ contribution to visibility impairment in neighboring states’ Class I areas to not be significant.

**The SIP statement that “the SO2 emissions modeled by the CENRAP are significantly higher than the 15,633 tpy reported by the TCEQ” was intended to refer specifically to the area sources of industrial and residential coal combustion that were over-represented in the CENRAP modeling inventory, not all SO2 emissions. The commission did not intend to imply that emissions or emissions contributions to visibility from its sources were insignificant. 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. In response to this comment, additions were made to Chapter 7: *Emissions Inventory* and Appendix 7-1 of the SIP revision for clarity.**

We request 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.”

In its 2009 SIP submittal,<sup>2</sup> Texas noted that:

The CAIR cap is the total allowable emissions of SO2 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 tpy 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.

What did TCEQ find?

### **Natural Conditions**

In its 2009 SIP submittal,<sup>3</sup> Texas states, “The TCEQ plans to work with the EPA, Federal Land Managers (FLMs), and other experts and researchers as Texas continues to refine natural condition estimates for future five-year reports and ten-year Regional Haze SIP revisions.” We encourage Texas to begin that effort with the FLMs.

In its 2009 “Response to Comments” document, TCEQ stated:

The NPS, FWS, and FS acknowledged Texas’ right to develop its own estimates of natural conditions, as established in 40 Code of Federal Regulations (CFR) 51.308; however, the FLMs requested that the EPA default estimates of natural conditions given equal weight in all tables, plots, and predictions that involve or depend upon an estimate of natural conditions.

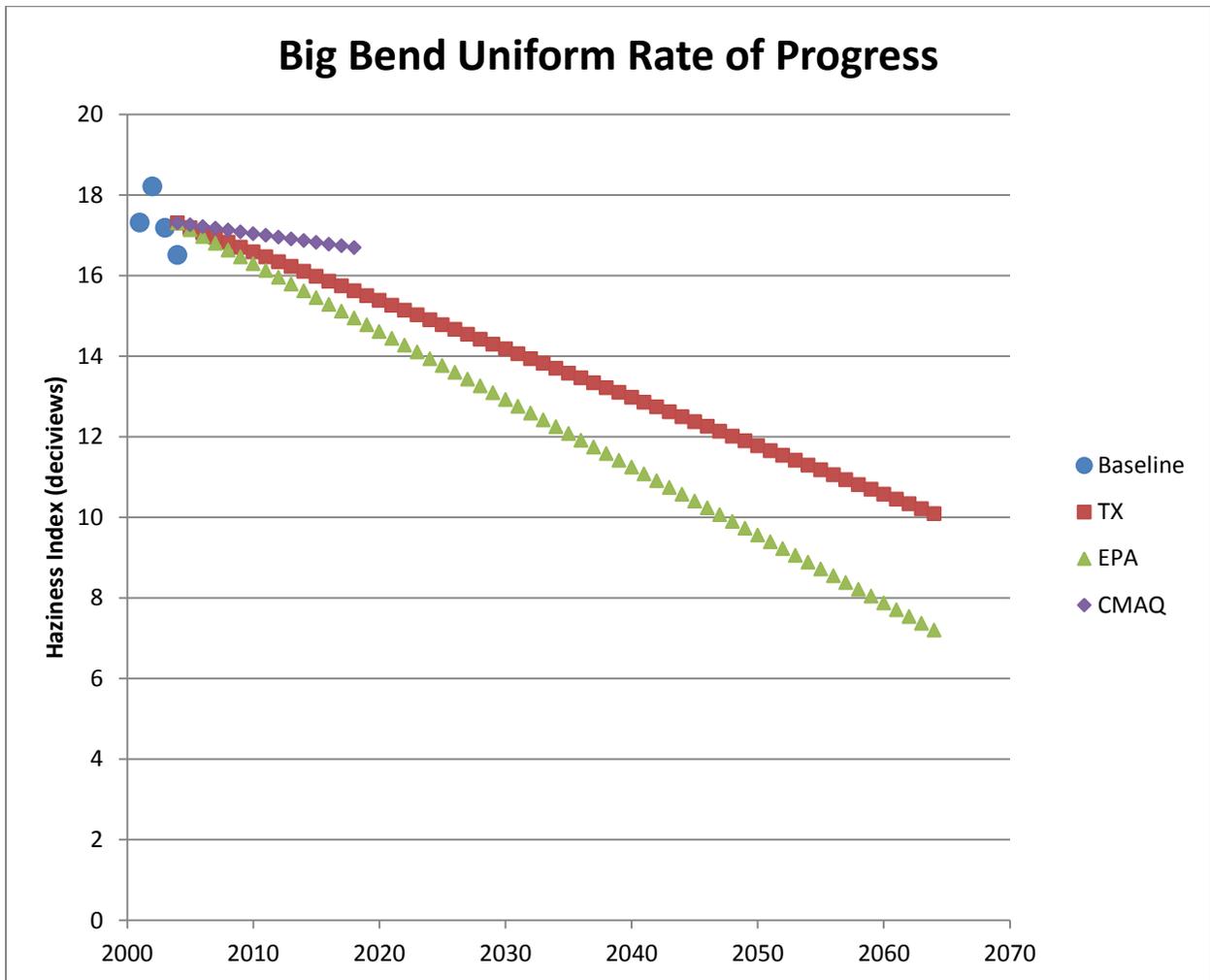
**The comparisons with the EPA default, or more specifically, the Natural Conditions II (NC II) committee's estimates using the New/Revised IMPROVE Algorithm, are available in Appendix 5-2. The commission made some changes in response to this comment, however the NC II estimates will remain in the appendix.**

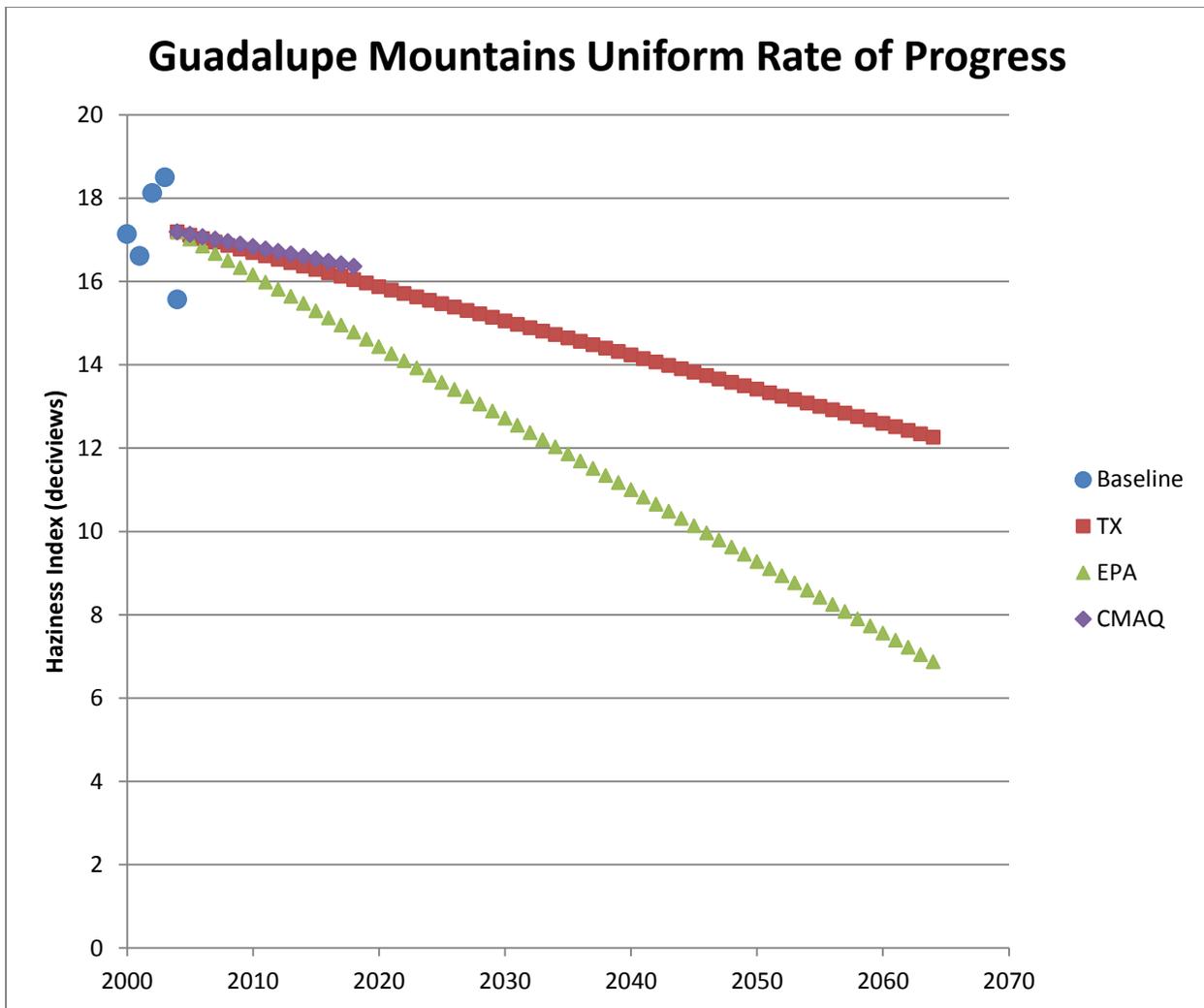
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<sup>2</sup> 10.5 UNCERTAINTY IN THE REASONABLE PROGRESS GOALS

<sup>3</sup> CHAPTER 10. REASONABLE PROGRESS GOALS, 10.1 INTRODUCTION

Because TCEQ declined to show the EPA default glidepath in the SIP main text or the Progress Report, we are providing that information for public review.





In its 2009 SIP submittal,<sup>4</sup> Texas noted that:

Because natural visibility estimates are calculated from complex environmental chemistry, require significant assumptions in the calculation and are ultimately calculated without a directly observable measurement, there remains considerable potential for improvement in estimation. Since the natural concentrations and statistics of all components important for Regional Haze have significant uncertainties, the TCEQ will be continuing to evaluate data, modeling, and any other sources of information, as well as potentially devising additional monitoring, sampling and/or analysis schemes, in order to further improve these estimates. Furthermore, the TCEQ plans to work with the EPA, FLMs, and other experts and researchers to refine natural conditions estimates for future five-year reports and major regional haze SIP revisions.

At this point, the component that most likely needs improved estimation is organic carbon.<sup>5</sup> Improved sampling and/or analysis techniques are likely methods in the pursuit of an improved characterization of the

<sup>4</sup> **5.4 NATURAL VISIBILITY CONDITIONS, AN ONGOING EFFORT**

<sup>5</sup> Additionally, 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.

natural contributions to this component. However, the application of such methods will depend upon available resources and estimates of potential benefits.

There is no mention of any effort to improve these estimates of natural visibility conditions in the Progress Report.

In our January 2008 comments to Texas, we expressed our concern about Texas use of its “refined” default natural conditions while its neighboring states were using the EPA default:

Therefore, we request that the Texas SIP specifically agree with its neighboring States’ use of EPA-IMPROVE default natural conditions estimates for the neighboring States’ Class I areas. In doing so, Texas would acknowledge that those States will be using EPA-IMPROVE calculations when addressing the possible need for additional controls on some Texas air pollution sources when setting reasonable progress goals for Class I areas outside of Texas. This is particularly important as it pertains to Carlsbad Caverns NP in New Mexico just northeast of Texas’ Guadalupe Mountains NP, since these two Class I areas share the same IMPROVE monitor. Furthermore, in its evaluations of Texas sources’ impacts to Class I areas located in other States, TCEQ needs to use the metric and approach that is selected by the State where each respective Class I area is located.

We again request that Texas respond to our concern.

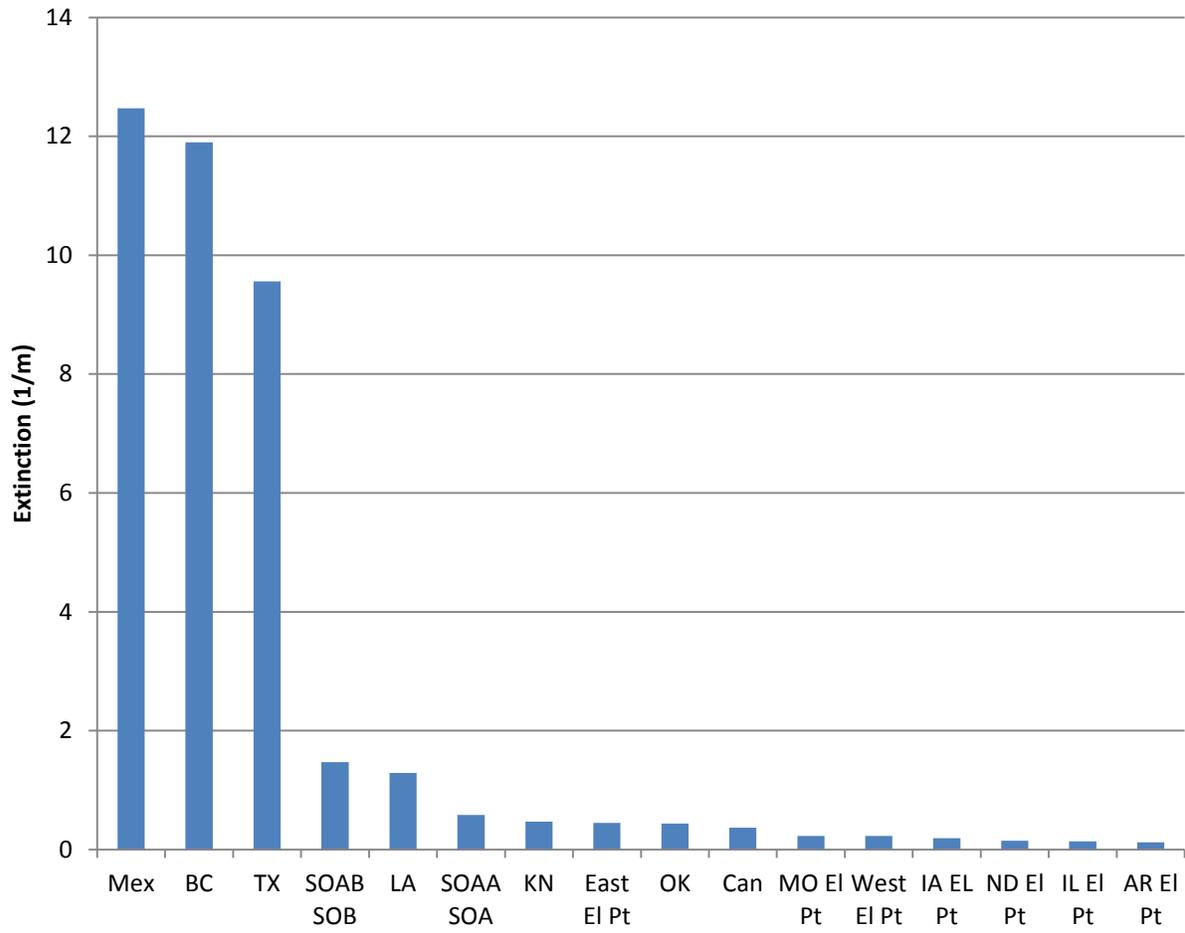
We have additional concerns that were not addressed in the Progress Report regarding SIP submittal section “**10.2 REASONABLE PROGRESS GOALS FOR TEXAS CLASS I AREAS**”

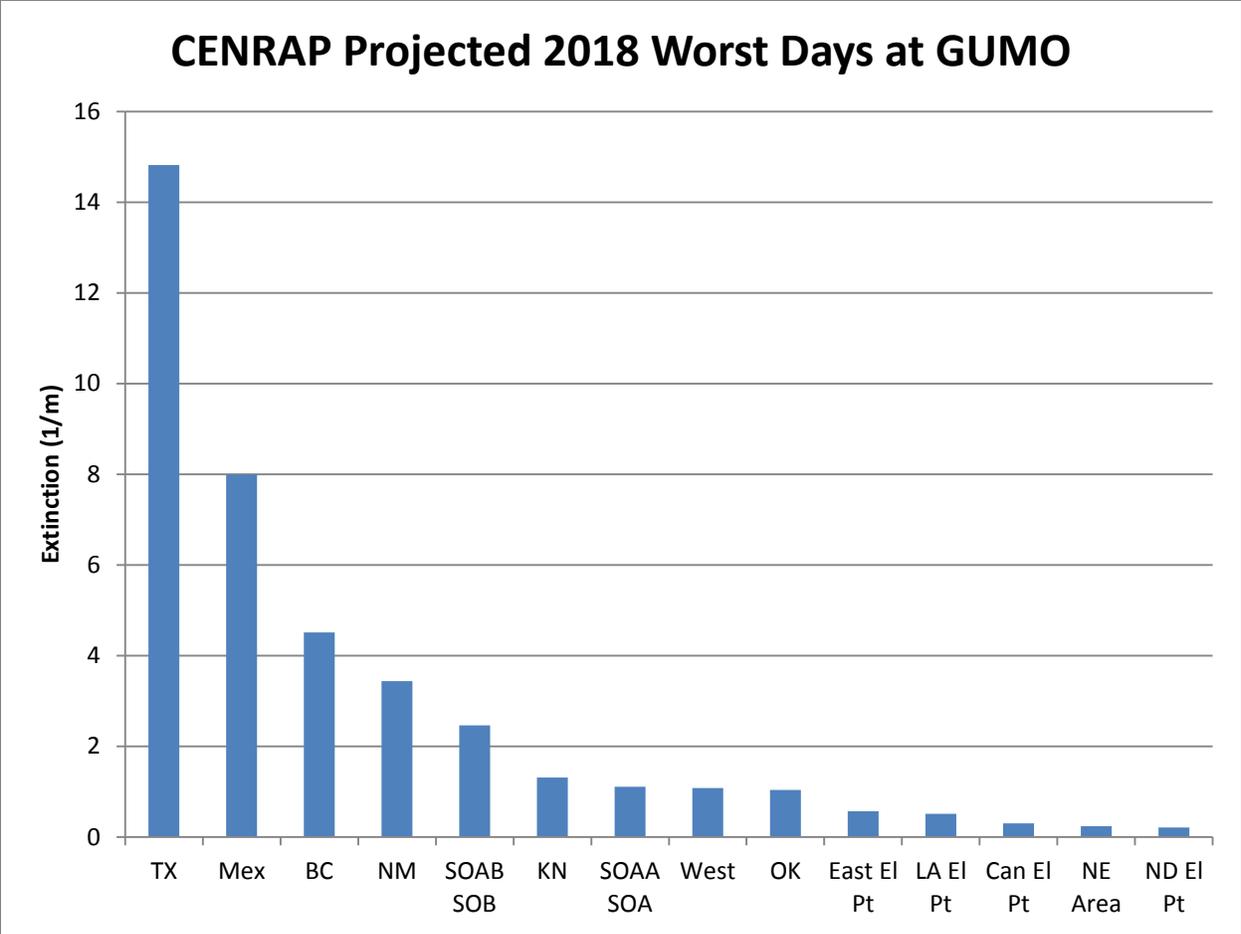
The TCEQ has determined that the rate of visibility improvement by 2018, shown in Table 10-2: *Reasonable Progress Goals for Class I Areas (Worst 20 Percent Days)*, is reasonable and will be implemented as the RPGs for the listed Class I areas.

Table 10-2 in the 2008 SIP shows 0.7 dv improvement at BIBE and 0.9 dv improvement at GUMO by 2018. However, Appendix 8-1 of the TSD for CENRAP Emissions and Air Quality Modeling predicts 16.69 dv at BIBE and 16.35 dv at GUMO by 2018. (The 2008 SIP figures 10-1 and 10-2 truncate these 2018 estimates to 16.6 dv at BIBE and 16.3 dv at GUMO.) The resulting improvement is 0.61 dv (0.04 dv/yr) at BIBE and 0.83 dv (0.06 dv/yr) at GUMO by 2018.

Table 10-2 also projects that natural conditions will be achieved in 151 years at BIBE and 77 years at GUMO. Even using the Texas’ estimates for natural conditions, those natural conditions would not be achieved for 165 years at BIBE and 83 years at GUMO. Use of the EPA default natural conditions means that natural conditions would not be achieved for 231 years at BIBE and 174 years at GUMO.

### CENRAP Projected 2018 Worst Days at BIBE





It is clear from these charts that Texas contributes more to visibility impairment at these national parks than any other state.