

Comments by the Texas Commission on Environmental Quality Regarding the Selection of States for Regional Haze Consultation by MANE-VU

- 1. The analysis presented to date is not sufficient to identify Texas as a contributing state.** The overarching concern with the analysis used to identify Texas as a contributing state is that it has relied on Q/d, which is intended only as “a highly conservative screening tool” as acknowledged in the “Selection of States for MANE-VU Regional Haze Consultation (2018)” document¹.

The TCEQ encourages MANE-VU to rely on photochemical grid modeling when identifying contributing states. Because MANE-VU is working towards a 2018 timeline, rather than taking advantage of the extension to 2021, there is no current modeling that Texas is aware of to inform the state contribution analysis. However, there will be such information, potentially for multiple base years from various states/RPO modeling groups, but not in time for a 2018 SIP submission.

It is also informative to note that CAMx photochemical grid modeling for 2018 conducted by CENRAP for the first phase of Regional Haze planning² indicates that Texas sulfate and nitrate contribution to MANE-VU Class I areas is less than 1% of the total for those areas, far below the ~3% contribution indicated by the Q/d analysis. Furthermore, in modeling conducted by MANE-VU for the first planning period, Texas was estimated to contribute 0-0.01% to MANE-VU Class I areas³.

CENRAP Modeled 2018 Contribution by Texas to MANE-VU Class I Areas	
Class I Area	Modeled Texas Sulfate and Nitrate Contribution (Percent of Total)
Brigantine (BRIG1)	0.23 %
Acadia (ACAD1)	0.39 %
Moosehorn (MOOS1)	0.41 %
Lye Brook (LYBR1)	0.62 %
Great Gulf (GRGU1)	0.81 %

In addition, although EPA did not include tagged data for state contributions, it is useful to note that all MANE-VU Class I areas are below their respective URPs, according to data presented in the draft Guidance⁴ and the recently released draft modeling by EPA⁵.

- 2. The Q/d analysis conducted to date is highly conservative and overstates the impact of contributing states.** The draft Guidance⁶ indicates that a state may “use annual emissions in tons divided by distance in kilometers between a source and the nearest Class I area” [emphasis added], and suggests that a state may generate multiple Q/d estimates and sum them for state totals for a given source category in the context of the four-

¹ <http://www.otcair.org/MANEVU/Upload/Publication/Reports/MANE-VU%20Contributing%20State%20Analysis%20Final.pdf>

² CENRAP PSAT Visualization Tool 2007 www.cenrap.org/projects.asp

³ http://www.otcair.org/MANEVU/Upload/Publication/Reports/Chapt_1-9--2006.1006.pdf

⁴ <https://www.epa.gov/visibility/draft-guidance-second-implementation-period-regional-haze-rule>

⁵ https://www3.epa.gov/ttn/scram/reports/2028_Regional_Haze_Modeling-Transmittal_Memo.pdf

⁶ <https://www.epa.gov/visibility/draft-guidance-second-implementation-period-regional-haze-rule>

factor analysis. However, the guidance does not recommend summing all emissions from all source categories for an entire state, then generating a Q/d using the state centroid. This approach overestimates the impact of the hypothetical “Texas” emissions source. Indeed, the draft guidance indicates that were the emissions distributed geographically, they would likely have a smaller impact on a particular Class I area than when emitted by a hypothetical single point source located at the centroid of the group⁷. Therefore, generating statewide Q/d in the manner employed by MANE-VU likely overestimates the calculated impact of sources in Texas.

The “Selection of States for MANE-VU Regional Haze Consultation (2018)” document⁸ indicates that the emissions inventories for 2011 were drawn from the NEIv2. The 2015 emissions inventories were drawn from the state average annual emissions trends calculated by EPA⁹, and include mobile categories (as indicated in consultation call I on 10/20/2017). Mobile sources should be considered as a non-controllable source category for the purposes of consultations. The TCEQ recommends that MANE-VU update their analysis to include the 2016 estimates in order to use the most recent information available.

While it is not entirely clear in the “Selection of States for MANE-VU Regional Haze Consultation (2018)” document how the Q/d was estimated, it appears that MANE-VU has used wind direction sectors from the NESCAUM 2006 analysis¹⁰. If this is the case, then this approach is unreliable for Texas. The wind direction sectors, or Ci’s, were derived from CALPUFF modeling and, as indicated in the “Selection of States for MANE-VU Regional Haze Consultation (2018)” document, are unreliable for Texas and should be excluded from the analysis.

In addition, assuming 100% of the emitted SO₂ and NO_x are converted to sulfate and nitrate (respectively) overstates the amounts of these species that reach MANE-VU Class I areas. For nitrate impacts the overestimation is greater than it is for sulfate because, as ammonium nitrate is transported, it dissociates into ammonia and nitric acid, and the nitric acid deposits readily.

Finally, the analysis used a Q/d for nitrate that was derived by series of ratios: (A) 2015 to 2011 statewide emissions and (B) nitrate to sulfate ratio taken from CALPUFF results for the surrogate state of Arkansas. It is not clear from the documentation why Arkansas was selected as a surrogate for Texas. It is also not clear why a ratio/surrogate approach was used rather than conducting a Q/d analysis for NO_x.

- 3. The HYSPLIT trajectories on the 20% most impaired days do not appear to support the Q/d analysis identifying Texas sources as impairing visibility in MANE-VU Class I areas.** Table 8 shows that frequency of trajectories emanating from Texas range from 0.000 to less than 0.74%, indicating that Texas is not likely to significantly contribute to the identified Class I areas on the 20% most impaired days.

⁷ in the context of BART

⁸ <http://www.otcair.org/MANEVU/Upload/Publication/Reports/MANE-VU%20Contributing%20State%20Analysis%20Final.pdf>

⁹ <https://www.epa.gov/air-emissions-inventories/air-pollutant-emissions-trends-data>

¹⁰ http://www.nescaum.org/documents/contributions-to-regional-haze-in-the-northeast-and-mid-atlantic--united-states/mane-vu_haze_contribution_assessment--2006-0831.pdf/

As a technical matter, the MANE-VU analysis used 500 meter trajectories, without clarifying whether this height is adequate to exclude trajectories that touch the ground or whether the analysis excluded such trajectories. The analysis should also present higher altitude trajectories (e.g. 1000 and 1500 meters) to verify whether the 500 meter height is representative

4. **Texas continues to have concerns with using 2011 for Regional Haze work, because 2011 is not representative of typical meteorology for Texas.** 2011 was the worst drought year recorded in Texas since at least 1895. Texas, Oklahoma, New Mexico and Louisiana experienced the hottest summer in 117 years (1895-2011), while the entire Southeast and southern portions of the Midwest and Arizona were exceptionally hot and it had much more wildfire than is typical. While any single year will show local meteorological anomalies, for Texas, 2011 is more uncertain than usual because of the atypical meteorological conditions and fires in Texas and surrounding states.

5. **Texas requests that MANE-VU consider changes to facilities that will significantly impact the contribution results for Texas.** While the TCEQ disputes the claim that Texas impacts visibility in the MANE-VU states, several shutdowns of Texas coal-fired power plants have been announced which will result in significant emission reductions in 2018¹¹. The table below shows the specific units and the actual or announced shut down date, as well as the 2016 emissions from these units.

Facility Name	Facility ID (ORISPL)	Unit ID	2016 SO ₂ Emissions (tons)	2016 NOx Emissions (tons)	County	Shutdown or Expected Shutdown
Big Brown	3497	1	21,532.3	2,276.8	Freestone	February 12, 2018
Big Brown	3497	2	20,937.6	2,243.2	Freestone	February 12, 2018
<i>Site Total</i>			<i>42,469.9</i>	<i>4,520.0</i>		
J T Deely	6181	1	3,569.4	643.1	Bexar	December 2018
J T Deely	6181	2	4,055.6	637.9	Bexar	December 2018
<i>Site Total</i>			<i>7,625.0</i>	<i>1,281.0</i>		
Monticello	6147	1	8,834.6	1,537.1	Titus	January 4, 2018

¹¹ These companies have not withdrawn their permits as of this date.

Monticello	6147	2	8,716.3	1,526.1	Titus	January 4, 2018
Monticello	6147	3	7,407.4	2,881.2	Titus	January 4, 2018
<i>Site Total</i>			<i>24,958.3</i>	<i>5,944.4</i>		
Sandow	6648	4	12,105.3	1,465.5	Milam	January 11, 2018
<i>Site Total</i>			<i>12,105.3</i>	<i>1,465.5</i>		
Sandow Station	52071	5A	1,116.9	740.9	Milam	January 11, 2018
Sandow Station	52071	5B	1,146.4	770.1	Milam	January 11, 2018
<i>Site Total</i>			<i>2,263.4</i>	<i>1,511.0</i>		
Total All Sites			89,421.9	14,721.8		

In addition to the planned shutdowns listed above, the U.S. EPA has signed pending consent decrees with carbon black facilities that will result in thousands of tons of reductions in SO₂ and NO_x by 2021.