TCEQ

Protecting Texas by Reducing and Preventing Pollution

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TO:

Name	Administrator Stephen L. Johnson
Organization	EPA
FAX Number	202-501-1450

FROM: **TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

Name	Terry G. Salem
Division/Region	Environmental Law
Telephone Number	(512) 239-0600
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NOTES:

Please find attached a copy of a Petition for Reconsideration of the CAIR, Docket No. OAR-2003-0053.

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Kathleen Hartnett White, *Chairman*
R. B. "Ralph" Marquez, *Commissioner*
Larry R. Soward, *Commissioner*
Glenn Shankle, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 11, 2005

Via facsimile, e-mail and hard copy
The Honorable Stephen L. Johnson
Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, NW
Mail Code: 1101A
Washington, DC 20460

Re: Petition for Reconsideration of Final Rule: Final Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Clean Air Interstate Rule); Revisions to Acid Rain Program; Revisions to the NO_x SIP Call, 70 *Fed. Reg.* 25162, May 12, 2005 ("Final Rule"). EPA Docket Number OAR-2003-0053

Dear Administrator Johnson:

The Texas Commission on Environmental Quality appreciates the opportunity to submit the attached Petition for Reconsideration of the final rule in the above-referenced matter.

Please accept the attached document for filing and confirm receipt. If you have any questions, please contact me at (512) 239-5525 or Terry Salem at (512) 239-0469.

Sincerely,

Glenn Shankle
Executive Director

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Enclosure

cc Jeffrey R. Holmstead, Assistant Administrator for Air and Radiation, OAQPS, U.S. EPA
Steve Page, Director, Office of Air Quality Planning and Standards, U.S. EPA
Mayor Richard E. Greene, Regional Administrator, EPA Region 6
Lawrence E. Starfield, Deputy Regional Administrator, EPA Region 6
Charles J. Sheehan, Regional Counsel, EPA Region 6
Karen Kornell, Chief, Natural Resources Division, Office of the State Attorney General
Cynthia Woelk, Assistant Attorney General, Office of the State Attorney General
Anthony Benedict, Assistant Attorney General, Office of the State Attorney General

bcc: Kathleen Hartnett White, Chairman
R. B. "Ralph" Marquez, Commissioner
Larry R. Soward, Commissioner
Derek Seal, General Counsel
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David Schanbacher, Chief Engineer
Lydia González Gromatzky, Deputy Director, Office of Legal Services
Dan Eden, Deputy Director, Office of Permitting, Remediation & Registration
Terry Salem, Staff Attorney, Environmental Law Division, Office of Legal Services

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In Re: Final Rule to Reduce	§	**Docket No. OAR-2003-0053**
Interstate Transport of Fine	§	
Particulate Matter and Ozone	§	
(Clean Air Interstate Rule);	§	
Revisions to Acid Rain Program;	§	
Revisions to the NO_x SIP Call	§	

PETITION FOR RECONSIDERATION

The Texas Commission on Environmental Quality respectfully submits this Petition for Reconsideration, pursuant to section 307(d) of the Clean Air Act[1], asking the Administrator of the Environmental Protection Agency to reconsider the Final Rule captioned above and published at 70 Fed. Reg. 25162 (May 12, 2005).

LIST OF ABBREVIATIONS USED IN THIS PETITION

The following abbreviations are used in this Petition:

Administrator - Administrator of the Environmental Protection Agency

AEP - American Electric Power

CAIR (or Final Rule) - the Clean Air Interstate Rule, captioned above and published at 70 Fed. Reg. 25162 (May 12, 2005)

Clean Air Act - 42 U.S.C. § 7401 *et seq.*

East Texas or East Texas region - roughly that portion of Texas that is traversed by and east of Interstate Highway 35 or Interstate Highway 37. *See* 30 TEX. ADMIN. CODE § 117.135 and TEX. UTIL. CODE § 39.264

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[1] 42 U.S.C. § 7607(d).

EGU - electric generating units

EPA - Environmental Protection Agency

ERCOT - Electric Reliability Council of Texas

Final Rule (or CAIR) - the Clean Air Interstate Rule, captioned above and published at 70 Fed. Reg. 25162 (May 12, 2005)

NAAQS - National Ambient Air Quality Standards

NO_x - oxides of nitrogen

$PM_{2.5}$ - fine particulate matter

SIP - State Implementation Plan

SO_2 - sulfur dioxide

SERC - Southeastern Electric Reliability Council

SPP - Southwest Power Pool

TCEQ - Texas Commission on Environmental Quality

WECC - Western Electricity Coordinating Council

West Texas or West Texas region - all of Texas, including El Paso, that does not fall within the definition of East Texas

I. BACKGROUND AND INTRODUCTION

Pursuant to the CAA requirement, the EPA promulgated NAAQS for ozone and particulate matter.[2] To implement, maintain, and enforce the NAAQS, the CAA requires

[2] 42 U.S.C. § 7409; 40 C.F.R. §§ 50.6, 50.7, 50.9, and 50.10.

states to develop and submit SIPs to the EPA.[3] Among other things, the CAA requires that SIPs contain adequate provisions to prohibit any source or other type of emissions activity within a state from emitting an air pollutant in amounts that will contribute significantly to any other state's nonattainment or maintenance of the NAAQS.[4]

The TCEQ has primary responsibility for implementing and overseeing Texas' CAA obligations,[5] including compliance with the CAA's provisions on interstate transport. In addition, Texas has an economic interest in the state's vitality and the manner in which its air quality is managed.

In the Final Rule, the EPA determined that 28 states and the District of Columbia contributed significantly to nonattainment of the NAAQS for $PM_{2.5}$ and/or ozone in downwind states.[6] The EPA required these upwind states to revise their SIPs to include control measures to reduce emissions of SO_2 and/or NO_x, based on states' obligations to address interstate transportation of pollutants under section 110(a)(2)(D) of the CAA.[7]

The Final Rule requires statewide SO_2 and NO_x reductions in Texas, even though West Texas is not shown to contribute significantly to downwind $PM_{2.5}$ nonattainment. If the entire state is subject to the Final Rule's requirements, there will be adverse impacts to

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[3] CAA § 110(a)(1), 42 U.S.C. § 7410(a)(1).

[4] CAA § 110(a)(2)(D), 42 U.S.C. § 7410(a)(2)(D).

[5] TEX. HEALTH & SAFETY CODE, §§ 382.001, *et seq.*

[6] *See* Final Rule, 70 Fed. Reg. 25162, 25165 (May 12, 2005).

[7] 42 U.S.C. § 7410(a)(2)(D).

Texas' economic interests. The EPA did not provide a reasoned explanation for imposing the rule statewide, an opportunity to comment on the justification, or an adequate response to comment on statewide imposition.

The EPA's statewide application of the rule is of sufficient significance, and is so objectionable, that the Texas Legislature, in its recently concluded regular session, enacted a law requiring the TCEQ to file this Petition for Reconsideration and take other appropriate action.[8]

II. LEGAL STANDARD FOR REVIEWING THIS PETITION

The Administrator has authority and a duty to reconsider the Final Rule.[9] Because the grounds for the objections raised in this petition arose after the period for public comment and are of central relevance to the outcome of the rule, the Administrator must "convene a proceeding for reconsideration of the rule and provide the same procedural rights as would have been afforded had the information been available at the time the rule was proposed."[10] The Administrator also has authority under its general rulemaking discretion to reconsider the Final Rule even if he concludes that the standards of CAA section 307(d)(7)(B)[11] have not been met.

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[8] HB 2481, Act of May 30, 2005, 79th Leg. R.S., Ch. ___, § ___, 2005 Tex. Gen. Laws ___. *See* Appendix 1.

[9] CAA § 307(d)(7)(B), 42 U.S.C. § 7607(d)(7)(B).

[10] *Id.*

[11] 42 U.S.C. § 7607(d)(7)(B).

III. ARGUMENT AND DISCUSSION

Based on the obligation[12] of states to address interstate transport of pollutants and the EPA's determination that Texas contributes significantly to downwind nonattainment of the NAAQS for $PM_{2.5}$ in two counties in Illinois,[13] the Final Rule requires Texas to revise its SIP to include statewide control measures to reduce emissions of the $PM_{2.5}$ precursors SO_2 and NO_x.[14] The EPA erred in adopting the $PM_{2.5}$ portion of the Final Rule, insofar as the rule includes West Texas in its coverage.

The EPA's determination that emission budgets apply statewide is contrary to customary SIP practice, which generally permits states to develop emission control plans to address specific problem sources or areas. Given the vastness of Texas, West Texas' distance from Illinois, and the minor contributions of sources in West Texas, the rule is too broad.

A. The EPA Made an Inadequate and Misguided Response to Texas' Request to Exclude West Texas.

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[12] CAA §110(a)(2)(D), 42 U.S.C. § 7410(a)(2)(D).

[13] The EPA determined that Texas significantly contributes to nonattainment of the annual $PM_{2.5}$ NAAQS in Madison and St. Clair counties in Illinois. *See* Table VI-8, 70 Fed. Reg. 25162, 25248 (May 12, 2005). Texas' maximum downwind $PM_{2.5}$ contribution was determined to be 0.29 $\mu g/m^3$. See Table VI-7, 70 Fed. Reg. 25162, 25247 (May 12, 2005).

[14] The rule allows each state to decide which emission sources to subject to controls and which control measures to adopt, but encourages states to adopt controls for EGUs. States, like Texas, that do so must place an enforceable cap on EGU emissions. Final Rule, 70 Fed. Reg. 25162, 25165 (May 12, 2005). As part of the Final Rule, the EPA calculated each state's cap.

In its Response to Comments document,[15] the EPA first mentioned its rationale for having required statewide application of the Final Rule. At the same time, the EPA acknowledged that it was not required to assess significance of contribution on a statewide basis.[16] The EPA defended its choice of statewide significance of contribution and statewide controls saying:

(1) state boundaries are a natural demarcation point because they reflect an autonomous political entity;[17]

(2) the structure of the CAA confirms this natural demarcation since the SIP process is statewide and section 110(a)(2)(D) prohibits emissions from *states* which contribute to nonattainment or interfere with maintenance of attainment in another state;[18]

(3) receptors do not differentiate the source of $PM_{2.5}$, and in most states the power generation grid is interconnected so that power generated in one part of the state can be routed to another part, and control of sources in East Texas alone could lead to in-state pollution havens (i.e., capacity increases in West Texas, routing power back to East Texas resulting in downwind receptors remaining exposed to the same levels of $PM_{2.5}$).

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[15] Corrected Response to Significant Public Comments on the Proposed Clean Air Interstate Rule, EPA Docket Number OAR-2003-0053-2172, April 2005, pp. 229-31.

[16] *See Michigan v. EPA*, 213 F.3d 663, 682 (D.C. Cir. 2000).

[17] Corrected Response to Significant Public Comments on the Proposed Clean Air Interstate Rule, EPA Docket Number OAR-2003-0053-2172, p. 229.

[18] *Id.*

The EPA also noted that it was unsure where else to draw the line since designating smaller areas would have "elements of arbitrariness."[19] The EPA's responses were inadequate and misguided.

B. Texas' boundaries aren't a valid demarcation line.

While denying it did so, the EPA used Texas' boundaries for a demarcation line as a matter of administrative convenience.[20] No science supported the need for statewide application in Texas.

States implement and oversee SIPs, so states' boundaries are important *political* demarcations. However, the CAA recognizes other demarcations within states as sufficient and meaningful for implementing SIP *control strategies*. For example, CAA section 107(d)(4)(A)(iv), which addresses ozone SIPs, requires that boundaries for certain nonattainment areas within a metropolitan statistical area include the entire metropolitan statistical area as a presumptive boundary.[21] The EPA has generally taken this approach in ozone designations, including its most recent designations for the 8-hour ozone standard where the EPA noted that it followed this presumptive boundary initially, but also considered other factors in including or excluding counties from the boundary

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[19] *Id.* at 229.

[20] *Id.* at 231.

[21] 42 U.S.C. § 7407(d)(4)(A)(iv).

determination.[22] Significantly, the EPA has previously recognized the Interstate Highway 35/37 line between East Texas and West Texas as a valid SIP control strategy demarcation line.[23] Given Texas' size — a total area of approximately 268,500 square miles divided into 254 counties, diversity (in meteorology, geography, population and emission source density), and the EPA's prior acceptance of splitting East Texas and West Texas for regulatory purposes, the EPA was arbitrary and capricious in applying the Final Rule statewide.

C. West Texas is different and should not make a significant contribution.

The EPA suggests that its CAIR modeling shows that Texas as a whole "significantly contributes" to the $PM_{2.5}$ non-attainment of two counties in Illinois. However, West Texas' climate, meteorology, location, and demographics indicate that area should not significantly contribute to pollution in Illinois.

Texas is different from the other states covered by the Final Rule. It is significantly larger, comprising almost 20% of the entire geographic region covered by the Final Rule. It is also the westernmost of the CAIR states, with portions of West Texas

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[22] *See* Final Rule Regarding 8-Hour Ozone National Ambient Air Quality Standards, 69 Fed. Reg. 23858, 23860-23861(April 30, 2004), in which the EPA considered other factors in including or excluding counties from the boundary determination.

[23] *See* Approval and Promulgation of Implementation Plans; Texas: Electric Generating Facilities; and Major Stationary Sources of Nitrogen Oxides for the Dallas/Fort Worth Ozone Nonattainment Area, 66 Fed. Reg. 15195 (March 16, 2001); Approval and Promulgation of Air Quality State Implementation Plan (SIP); Texas: Control of Gasoline Volatility, 66 Fed. Reg. 20927 (April 26, 2001); and, Approval and Promulgation of Air Quality State Implementation Plan (SIP); Texas: Low Emission Diesel Fuel, 66 Fed. Reg. 57196 (November 14, 2001).

being closer to Los Angeles than to another CAIR state. East Texas is heavily populated — it includes three of the ten largest cities in the United States[24] — while West Texas, like many western states, is sparsely populated. Most industrial facilities that emit pollutants covered by the Final Rule are located in East Texas.

West Texas and East Texas also have distinct climates and meteorology. East Texas is essentially a part of the Mississippi River Valley (as are many of the CAIR states), with prevailing wind patterns moving from the Gulf of Mexico northward up the valley. East Texas is relatively humid. West Texas, on the other hand, generally includes the High Plains area, the Permian basin, and Trans-Pecos regions, an arid area with desert-like sections.

Using the HYSPLIT model, the TCEQ documented that the overwhelming majority of air parcels coming from Texas that pass through the affected Illinois counties pass from the East Texas area. The results, input parameters, and methodology of the HYSPLIT model are provided in Appendix 2.

D. The EPA's decision to apply emission budgets statewide was arbitrary and capricious, and EPA did not follow proper procedure.

The EPA did not provide its interconnectivity/pollution-haven rationale for statewide application of the Final Rule in either the initial or supplemental proposal. Thus, until now the TCEQ has had no meaningful opportunity to provide information on

[24]Houston, Dallas-Ft. Worth, and San Antonio.

interconnectivity of power generation grids and transmission capacity. Moreover, the EPA's explanation is unsupportable and suggests a post hoc rationalization.

The ability and likelihood of creating "pollution havens" within Texas also are limited by interconnectivity, transmission configuration, and capacity. Regulatory requirements and the time and financial investment required to build additional transmission lines or electric generation facilities are barriers, as well. Moreover, the EPA focused on interconnectivity within Texas but ignored interconnectivity and transmission capacity between and among states to which the Final Rule applies and non-covered states.

1. Interconnectivity.

Three main interconnected networks or power grids comprise the electric power system in the continental United States. They are the Eastern Interconnect, the Western Interconnect, and the Texas (or ERCOT) Interconnect. The Eastern and Western Systems are subdivided into areas in which different utilities or regional transmission organizations manage the transmission network. The Texas Interconnect is not connected with the other networks, except through certain direct current (DC) interconnection facilities; and the other two have limited interconnection to each other, also through DC interconnections.[25]

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[25] *See* Energy Information Administration, Electric Power Industry Overview, Introduction, Electric Power Transactions and the Interconnected Networks (last modified May 21, 2002) <http://www.eia.doe.gov/cneaf/electricity/page/prim2/toc2.html>.

Portions of Texas fall into each of the three interconnects.[26] Power generation in Texas is monitored by several regional reliability councils, including ERCOT, Western Electricity Coordinating Council (WECC), Southwest Power Pool (SPP) and Southeastern Electric Reliability Council (SERC). There are ten regional reliability councils in the North American Electric Reliability Council or NERC.[27] ERCOT is the independent, not-for-profit organization responsible for the reliable transmission of electricity across Texas' interconnected 37,000-mile power grid. As a NERC member, the primary responsibility of ERCOT is to facilitate reliable power grid operations in the ERCOT region by working with the region's electrical energy industry organizations.[28] A large portion of West Texas, including the Panhandle[29] and the city of Amarillo, and a small portion of northeast Texas are in the SPP. El Paso and the area around it are in the WECC.[30] ERCOT, which covers the majority of Texas, is connected to the SPP by DC

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[26] *See* ERCOT coverage map (last modified May 4, 2001) <http://www.ercot.com/AboutERCOT/Operations/NetworkMap.htm>.

[27] See North American Electric Reliability Council website (visited July 7, 2005) <http://www.nerc.com/regional/>.

[28] *See* Electric Reliability Council of Texas website (visited July 7, 2005) < http://www.ercot.com>.

[29] The Texas Panhandle is generally that portion of northern Texas situated due west of the western boundary of Oklahoma and extending to the eastern boundary of New Mexico.

[30] See Map of NERC Regions (visited July 7, 2005) <http://www.nerc.com/regional/nercmapcolor.jpg>; and, Map of NERC Interconnections (visited July 7, 2005) <http://www.nerc.com/regional/NERC_Interconnections_color.jpg>.

ties. These ties have a total of 820 megawatts of transmission capacity.[31] In addition, there are three DC ties in New Mexico and Colorado, with a total capacity of 600 megawatts, that permit power to be transferred between SPP and WECC. The absence of larger ties between ERCOT and SPP limits the capacity for high-volume exchanges of power between West Texas and ERCOT.

2. Transmission capacity.

Even within an alternating current transmission system, transmission capacity is inherently limited by both the physical properties of power lines and other equipment and the operating standards that are adopted to meet safety and reliability concerns. If electricity is forced to exceed specified engineering limits, wires or other transmission system equipment heat up and may melt or catch fire. Overheated transmission lines can also sag onto structures or roads, so safety limits are prescribed by the National Electric Safety Code. In addition to carrying capacity, transmission is limited by the configuration of a transmission network (location, capacity, and availability of alternative paths for power transmission).[32]

Physical limitations in the power system can prevent power from some sources

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[31] *See* 2004 State of the Market Report: Southwest Power Pool, Inc., by Boston Pacific Company, Inc., May 31, 2005, Table I.10, available at: 2004 State of the Market Report: Southwest Power Pool, Inc., by Boston Pacific Company, Inc., May 31, 2005, Table I.10 (visited July 7, 2005) <http://www.spp.org/Publications/SPP_State-of-the-Market-Report-05312005.pdf.

[32] *See* "2004 Assessment of the Operation of the ERCOT Wholesale Electricity Markets," Potomac Economics, Ltd., November 2004, p. 2.(visited July 7, 2005) <http://www.puc.state.tx.us/electric/reports/potomac/ERCOT_OpRpt_PE.pdf>.

from reaching some markets. The utility practice in the United States has been to locate significant power resources close to the major cities that the resources are intended to serve.[33]

3. Transporting pollution.

In addition to limited interconnectivity and transmission capacity, emission shifting in Texas would not be likely because of the limited physical capacity of the West Texas electrical generating units to produce additional power. There are few coal-fired power plants in West Texas. Xcel Energy owns coal-fired power plants in the Texas Panhandle, while American Electric Power (or AEP) and municipal utilities jointly own the Oklaunion power plant in ERCOT. The Xcel power plants face physical transmission constraints in selling power into ERCOT because of the nature of the grid; their natural market is in the SPP and other regions of the Eastern Interconnect, typically in West Texas and New Mexico. AEP's single coal-fired plant in West Texas (Oklaunion) is connected to ERCOT, while their coal-fired plants in East Texas (Welsh and Pirkey) are connected to SPP. AEP has very limited ability to shift power between the SPP and ERCOT. Additionally, the Oklaunion facilities are currently base loaded (at full capacity), so no additional capacity exists to shift.

Distribution of electricity is essentially a matter of balancing supply and demand since there is no effective method of storing electricity for long periods of time.

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[33] *Id.*

Limitations in transmission capacity will inherently limit the amount of electricity that can be moved to so-called pollution havens. In addition, decisions on the location of new power plants are based primarily on the availability of essential resources, such as fuel and cooling water, and transmission capacity to move the power to major markets. Water availability and transmission capacity would be issues for any new coal plant in West Texas.

The Final Rule shows a lack of understanding of the nature of the electrical system serving West Texas. West Texas, in general, has low population density and very low heavy industry density, and the power plants that were built to serve the area were built to serve this limited customer base and not with the idea of exporting power to other regions.[34] The El Paso region is a significant importer of power, relying on nuclear facilities in Arizona and coal facilities in the Four Corners area of New Mexico. The development of power plants that has occurred in the past ten years in this area has been efficient gas-fired facilities and wind power.[35]

Even if the EPA were correct in asserting that exempting West Texas from the Final Rule would create incentives for utility expansion in that area, there are powerful

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[34] West Texas and non-CAIR states that are within the Eastern Interconnect share characteristics of very low population density and, therefore, less robust transmission networks, which complicates the ability for power to be routed from those areas to more populated urban areas elsewhere.

[35] In fact, West Texas has reason to cheer its developing wind power capacity that may serve the area well in years to come.

countervailing considerations. Constructing new transmission lines and plants is costly and faces regulatory hurdles.[36] And modeling indicates that power generation in the area is less likely to impact Illinois.[37]

4. The EPA treated Texas differently.

The EPA's professed concerns about the integrity of the cap and trade program[38] and the creation of pollution havens[39] that might result from excluding West Texas from application of the Final Rule appear to be nothing more than post hoc rationalizations. In general, the Final Rule applies to eastern states, namely the states east of the Mississippi River and Minnesota, Iowa, Missouri, Louisiana, and Texas. All except Texas belong to the Eastern Grid. Yet there are some states connected to the Eastern Grid to which the

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[36] Any newly constructed units would be required to meet Best Available Control Technology, which would presumably be strictly than the CAIR final rule requirements. TEX. HEALTH & SAFETY CODE § 382.0518; 30 TEX. ADMIN. CODE § 116.111.

[37] *See* Appendix 2.

[38] The EPA said that "as a matter of policy, cap and trade programs by their nature must apply consistently throughout the geographic region of the program in order to be effective. Otherwise the existence of areas not covered by the cap could create incentives to locate sources there, and thereby undermine the environmental goals of the program." *See* Final Rule at 70 Fed. Reg. 25162, 25247 (May 12, 2005).

[39] "In most states, including Texas and Florida (the two states mentioned by the commenters as candidates for subdivision), the power generation grid is interconnected. This means that power generated in part of a state can be readily routed to any other part of the state. Control of sources in only East Texas thus could lead to a situation where capacity is increased in West Texas, power is routed back to East Texas, and downwind receptors remain exposed to the same or similar level of $PM_{2.5}$ and ozone emissions. EPA's statewide approach avoids this real possibility of creating such in-state pollution havens." Corrected Response to Significant Public Comments on the Proposed Clean Air Interstate Rule, EPA Docket Number OAR-2003-0053-2172, April 2005, p. 230.

Final Rule does not apply.[40] The EPA did not explain why omission of certain interconnected states (1) would not undermine the integrity of the Final Rule's cap and trade program, (2) would not create interstate pollution havens (between covered and non-covered states that share power generation grids), or (3) why the Texas Grid is uniquely vulnerable to these problems. The EPA's explanation (and lack thereof) fails to provide a reasoned basis for including West Texas — a vast area, larger than any other covered state — in the Final Rule's coverage.

CONCLUSION AND REQUEST FOR RELIEF

Based on the foregoing, the TCEQ respectfully requests that the Administrator grant this Petition and promptly convene a proceeding to reconsider the issues raised in this Petition.

Glenn Shankle
Executive Director

[40] These states are North Dakota, Nebraska, Kansas and Oklahoma. See Map of NERC Regions (visited July 7, 2005) <http://www.nerc.com/regional/nercmapcolor.jpg>; and Map of NERC Interconnections (visited July 7, 2005) <http://www.nerc.com/regional/NERC_Interconnections_color.jpg>, compared to Map of the United States (visited July 7, 2005) <http://us.i1.yimg.com/us.yimg.com/i/travel/dg/maps/9b/750x750_unitedstates_m.gif>.

Appendix 1

HB 2481
Act of May 30, 2005, 79th Legislature, Regular Session

H.B. No. 2481

AN ACT

relating to air contaminant emissions reductions, including the continuation and provisions of the Texas emissions reduction plan and the use of money currently dedicated to the Texas emissions reduction plan fund.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF TEXAS:

SECTION 1. Section 382.0172(c), Health and Safety Code, is amended to read as follows:

(c) The commission may authorize or allow substitution of emissions reductions under Subsection (b) only if:

(1) reductions in emissions of one air contaminant for which the area has been designated as nonattainment are substituted for reductions in emissions of another air contaminant for which the area has been designated as nonattainment; or [~~and~~]

(2) the commission finds that the substitution will clearly result in greater health benefits for the community as a whole than would reductions in emissions at the original facility.

SECTION 2. Subchapter B, Chapter 382, Health and Safety Code, is amended by adding Section 382.0173 to read as follows:

Sec. 382.0173. ADOPTION OF RULES REGARDING CERTAIN STATE IMPLEMENTATION PLAN REQUIREMENTS AND STANDARDS OF PERFORMANCE FOR CERTAIN SOURCES. (a) The commission shall adopt rules to comply with Sections 110(a)(2)(D) and 111(d) of the federal Clean Air Act (42 U.S.C. Sections 7410 and 7411). In adopting the rules, at a

minimum the commission shall adopt and incorporate by reference 40 C.F.R. Subparts AA through II and Subparts AAA through III of Part 96 and 40 C.F.R. Subpart HHHH of Part 60. The commission shall adopt a state implementation plan in accordance with the rules and submit the plan to the United States Environmental Protection Agency for approval according to the schedules adopted by that agency.

(b) The commission may require emissions reductions in conjunction with implementation of the rules adopted under Subsection (a) only for electric generating units. The commission shall make permanent allocations that are reflective of the allocation requirements of 40 C.F.R. Subparts AA through HH and Subparts AAA through HHH of Part 96 and 40 C.F.R. Subpart HHHH of Part 60, as applicable, at no cost to units as defined in 40 C.F.R. Section 51.123 and 60.4102 using the United States Environmental Protection Agency's allocation method as specified by Section 60.4142(a)(1)(i), as issued by that agency on May 12, 2005, or 40 C.F.R. Section 96.142(a)(1)(i), as issued by that agency on May 18, 2005, as applicable with the exception of nitrogen oxides which shall be allocated according to the additional requirements of Subsection (c). The commission shall maintain a special reserve of allocations for new units commencing operation on or after January 1, 2001, as defined by 40 C.F.R. Subparts AA through HH and Subparts AAA through HHH of Part 96 and 40 C.F.R. Subpart HHHH of Part 60, as applicable with the exception of nitrogen oxides which shall be allocated according to the additional requirements of Subsection (c).

(c) Additional requirements regarding NOx allocations:

(1) The commission shall maintain a special reserve of allocations for nitrogen oxide of 9.5 percent for new units. Beginning with the 2015 control period, units shall be considered new for each control period in which they do not have five years of operating data reported to the commission prior to the date of allocation for a given control period. Prior to the 2015 control period, units that commenced operation on or after January 1, 2001, will receive NOx allocations from the special reserve only.

(2) Nitrogen oxide allowances shall be established for the 2009-2014 control periods for units commencing operation before January 1, 2001, using the average of the three highest amounts of the unit's adjusted control period heat input for 2000 through 2004, with the adjusted control period heat input for each year calculated as follows:

(A) if the unit is coal-fired during the year, the unit's control period heat input for such year is multiplied by 90 percent;

(B) if the unit is natural gas-fired during the year, the unit's control period heat input for such year is multiplied by 50 percent; and

(C) if the fossil fuel fired unit is not subject to Subparagraph (A) or (B) of this paragraph, the unit's control period heat input for such year is multiplied by 30 percent.

(3) Before the allocation date specified by EPA for the control period beginning January 1, 2016, and every five years thereafter, the commission shall adjust the baseline for all

affected units using the average of the three highest amounts of the unit's adjusted control period heat input for periods one through five of the preceding seven control periods, with the adjusted control period heat input for each year calculated as follows:

(A) for units commencing operation before January 1, 2001:

(i) if the unit is coal-fired during the year, the unit's control period heat input for such year is multiplied by 90 percent;

(ii) if the unit is natural gas-fired during the year, the unit's control period heat input for such year is multiplied by 50 percent; and

(iii) if the fossil fuel fired unit is not subject to Subdivision (3)(A)(i) or (3)(A)(ii) of this subparagraph, the unit's control period heat input for such year is multiplied by 30 percent.

(B) for units commencing operation on or after January 1, 2001, in accordance with the formulas set forth by USEPA in 40 C.F.R. 96.142 with any corrections to this section that may be issued by USEPA prior to the allocation date.

(d) This section applies only while the federal rules cited in this section are enforceable and does not limit the authority of the commission to implement more stringent emissions control requirements.

(e) In adopting rules under Subsection (a), the commission shall incorporate any modifications to the federal rules cited in this section that result from a request for rehearing regarding

those rules that is filed with the United States Environmental Protection Agency or from a petition for review of those rules that is filed with a court.

(f) The commission shall take all reasonable and appropriate steps to exclude the West Texas Region and El Paso Region, as defined by Section 39.264(g), Utilities Code, from any requirement under, derived from, or associated with 40 C.F.R. Sections 51.123, 51.124, and 51.125, including filing a petition for reconsideration with the United States Environmental Protection Agency requesting that it amend 40 C.F.R. Sections 51.123, 51.124, and 51.125 to exclude such regions. The commission shall promptly amend the rules it adopts under Subsection (a) of this section to incorporate any exclusions for such regions that result from the petition required under this subsection.

(g) The commission shall study the availability of mercury control technology. The commission shall also examine the timeline for implementing the reductions required under the federal rules, the cost of additional controls both to the plant owners and consumers, and the fiscal impact on the state of higher levels of mercury emissions between 2005 and 2018, and consider the impact of trading on local communities. The commission shall report its findings by September 1, 2006.

SECTION 3. Section 386.002, Health and Safety Code, is amended to read as follows:

Sec. 386.002. EXPIRATION. This chapter expires August 31, 2010 [~~2008~~].

SECTION 4. Sction 386.053(c), Health and Safety Code, is

amended to read as follows:

(c) The commission shall make draft guidelines and criteria available to the public and the United States Environmental Protection Agency before the 30th [~~45th~~] day preceding the date of final adoption and shall hold at least one public meeting to consider public comments on the draft guidelines and criteria before final adoption. The public meeting shall be held in the affected state implementation plan area, and if the guidelines affect more than one state implementation plan area, a public meeting shall be held in each affected state implementation plan area affected by the guidelines.

SECTION 5. Sections 386.058(b) and (e), Health and Safety Code, are amended to read as follows:

(b) The governor shall appoint to the advisory board:

(1) a representative of the trucking industry;

(2) a representative of the air conditioning manufacturing industry;

(3) a representative of the electric utility industry;

(4) a representative of regional transportation; and

(5) a representative of the nonprofit organization described by Section 386.252(a)(2) [~~the Texas Council on Environmental Technology~~].

(e) Appointed members of the advisory board serve staggered four-year [~~two-year~~] terms, with the [~~. The~~] terms of seven or eight appointed members expiring [~~expire~~] February 1 of each [~~even-numbered year. The terms of eight appointed members expire February 1 of each~~] odd-numbered year. An appointed member may be

reappointed to a subsequent term.

SECTION 6. Section 386.102, Health and Safety Code, is amended by adding Subsection (e) to read as follows:

(e) To improve the success of the program the commission:

(1) shall establish cost-effective limits for grants awarded under the program to an owner or operator of a locomotive or marine vessel that are lower than the cost-effectiveness limits applied to other emissions reductions grants;

(2) shall determine the maximum amount of reductions available from the locomotive and marine sectors and develop strategies to facilitate the maximum amount of reductions in these sectors; and

(3) shall include in the report required by Section 386.057(b) that is due not later than December 1, 2006, an analysis of the cost-effectiveness of the grants in these sectors.

SECTION 7. Section 386.111(a), Health and Safety Code, is amended to read as follows:

(a) The commission shall review an application for a grant for a project authorized under this subchapter, including an application for a grant for an infrastructure project, immediately on receipt of the application. If the commission determines that an application is incomplete, the commission shall notify the applicant[~~, not later than the 15th working day after the date on which the commission received the application,~~] with an explanation of what is missing from the application. The commission shall [~~record the date and time of receipt of each application the commission determines to be complete and shall~~] evaluate the

completed application according to the appropriate project criteria. Subject to available funding, the commission shall make a final determination on an application as soon as possible [~~and not later than the 60th working day after the date the application is determined to be complete~~].

SECTION 8. Section 386.116(d), Health and Safety Code, is amended to read as follows:

(d) The [~~On or before December 1 of each even-numbered year, the~~] commission shall include in the biennial plan report required by Section 386.057(b) a report of commission actions and results under this section [~~to the governor, lieutenant governor, and speaker of the house of representatives~~].

SECTION 9. Subchapter C, Chapter 386, Health and Safety Code, is amended by adding Section 386.117 to read as follows:

Sec. 386.117. REBATE GRANTS. (a) The commission shall adopt a process for awarding grants under this subchapter in the form of rebates to streamline the grant application, contracting, reimbursement, and reporting processes for certain projects. The process adopted under this section must:

(1) designate certain types of projects, such as repowers, replacements, and retrofits, as eligible for rebates;

(2) project standardized oxides of nitrogen emissions reductions for each designated project type;

(3) assign a standardized rebate amount for each designated project type;

(4) allow for processing rebates on an ongoing first-come, first-served basis; and

(5) consolidate, simplify, and reduce the administrative work for applicants and the commission associated with grant application, contracting, reimbursement, and reporting processes for designated project types.

(b) The commission may limit or expand the designated project types as necessary to further the goals of the program.

(c) The commission may award rebate grants as a pilot project for a specific region or may award the grants statewide.

(d) The commission may administer the rebate grants or may designate another entity to administer the grants.

SECTION 10. Section 386.251(c), Health and Safety Code, is amended to read as follows:

(c) The fund consists of:

(1) the amount of money deposited to the credit of the fund [~~contributions, fees, and surcharges~~] under:

(A) Section 386.056;

(B) Sections 151.0515 and 152.0215, Tax Code; and

(C) Sections 501.138, 502.1675, and 548.5055 [~~and 548.256(c)~~], Transportation Code; and

(2) grant money recaptured under Section 386.111(d).

SECTION 11. Section 386.252(a), Health and Safety Code, is amended to read as follows:

(a) Money in the fund may be used only to implement and administer programs established under the plan and shall be allocated as follows:

(1) for the diesel emissions reduction incentive program, 87.5 percent of the money in the fund, of which not more

than 10 percent may be used for on-road diesel purchase or lease incentives;

(2) for the new technology research and development program, 9.5 percent of the money in the fund, of which up to $250,000 is allocated for administration, up to $200,000 is allocated for a health ~~effects~~ study, $500,000 is to be deposited in the state treasury to the credit of the clean air account created under Section 382.0622 to supplement funding for air quality planning activities in affected counties, [~~and~~] not less than 20 percent is to be allocated each year to support research related to air quality for the Houston-Galveston-Brazoria and Dallas-Fort Worth nonattainment areas by a nonprofit organization based in Houston, and the balance is to be allocated each year to that nonprofit organization based in Houston to be used to implement and administer the new technology research and development program under a contract with the commission for the purpose of identifying, testing, and evaluating new emissions-reducing technologies with potential for commercialization in this state and to facilitate their certification or verification; and

(3) for administrative costs incurred by the commission and the laboratory, three percent of the money in the fund.

SECTION 12. Effective September 1, 2008, Section 386.252(a), Health and Safety Code, is amended to read as follows:

(a) Money in the fund may be used only to implement and administer programs established under the plan and shall be allocated as follows:

(1) for the diesel emissions reduction incentive program, 64 [~~87.5~~] percent of the money in the fund, of which not more than 10 percent may be used for on-road diesel purchase or lease incentives;

(2) for the new technology research and development program, 33 [~~9.5~~] percent of the money in the fund, of which up to $250,000 is allocated for administration, up to $200,000 is allocated for a health effects study, $500,000 is to be deposited in the state treasury to the credit of the clean air account created under Section 382.0622 to supplement funding for air quality planning activities in affected counties, [~~and~~] not less than 10 [~~20~~] percent is to be allocated each year to support research related to air quality for the Houston-Galveston-Brazoria and Dallas-Fort Worth nonattainment areas by a nonprofit organization based in Houston, not less than 25.5 percent is to be allocated each year to that nonprofit organization based in Houston to be used to implement and administer the new technology research and development program under a contract with the commission for the purpose of identifying, testing, and evaluating new emissions-reducing technologies with potential for commercialization in this state and to facilitate their certification or verification, not more than $12,500,000 is to be allocated each year from any excess funds to be administered by the commission to fund a study of regional ozone formation in this state, meteorological and chemical modeling, and issues related to ozone formation by ozone precursors and fine particulate matter formation in this state, and the balance is to be allocated each

year to the commission to fund promising new technologies as identified through the new technology research and development program and recommended by that nonprofit organization based in Houston in order to permit obtaining the maximum credits for emissions reductions under the state's air quality state implementation plans; and

(3) for administrative costs incurred by the commission and the laboratory, three percent of the money in the fund.

SECTION 13. Section 387.003(a), Health and Safety Code, is amended to read as follows:

(a) The nonprofit organization described by Section 386.252(a)(2), under a contract with the commission as described by that section[, ~~in consultation with the Texas Council on Environmental Technology~~], shall establish and administer a new technology research and development program as provided by this chapter.

SECTION 14. Section 387.005(a), Health and Safety Code, is amended to read as follows:

(a) Grants awarded under this chapter shall be directed toward a balanced mix of:

(1) retrofit and add-on technologies to reduce emissions from the existing stock of vehicles targeted by the Texas emissions reduction plan;

(2) advanced technologies for new engines and vehicles that produce very-low or zero emissions of oxides of nitrogen, including stationary and mobile fuel cells;

(3) studies to improve air quality assessment and modeling; and

(4) [~~advanced technologies that promote increased building and appliance energy performance, and~~

[~~(5)~~] advanced technologies that reduce emissions from other significant sources.

SECTION 15. Section 388.003(e), Health and Safety Code, is amended to read as follows:

(e) Local amendments may not result in less stringent energy efficiency requirements in nonattainment areas and in affected counties than the energy efficiency chapter of the International Residential Code or International Energy Conservation Code. Local amendments must comply with the National Appliance Energy Conservation Act of 1987 (42 U.S.C. Sections 6291-6309), as amended. The laboratory, at the request of a municipality or county, shall determine the relative impact of proposed local amendments to an energy code, including whether proposed amendments are substantially equal to or less stringent than the unamended code. For the purpose of establishing uniform requirements throughout a region, and on request of a council of governments, a county, or a municipality, the laboratory may recommend a climatically appropriate modification or a climate zone designation for a county or group of counties that is different from the climate zone designation in the unamended code. The laboratory shall:

(1) report its findings to the council, county, or municipality, including an estimate of any energy savings potential

above the base code from local amendments; and

(2) annually submit a report to the commission:

(A) identifying the municipalities and counties whose codes are more stringent than the unamended code, and whose codes are equally stringent or less stringent than the unamended code; and

(B) quantifying energy savings and emissions reductions from this program.

SECTION 16. Section 389.003, Health and Safety Code, is amended to read as follows:

Sec. 389.003. COMPUTING ENERGY EFFICIENCY EMISSIONS REDUCTIONS AND ASSOCIATED CREDITS. (a) The commission shall develop a method to use in computing emissions reductions obtained through energy efficiency initiatives, including renewable energy initiatives, and the credits associated with those reductions.

(b) The laboratory shall assist the commission and affected political subdivisions in quantifying, as part of the state implementation plan, credits for emissions reductions attributable to energy efficiency programs, including renewable energy programs.

SECTION 17. Section 151.0515(d), Tax Code, is amended to read as follows:

(d) This section expires September 30, 2010 [~~2008~~].

SECTION 18. Section 152.0215(c), Tax Code, is amended to read as follows:

(c) This section expires September 30, 2010 [~~2008~~].

SECTION 19. Section 501.138, Transportation Code, is

amended by amending Subsections (a) and (b) and adding Subsections (b-1), (b-2), and (b-3) to read as follows:

(a) An applicant for a certificate of title, other than the state or a political subdivision of the state, must pay the county assessor-collector a fee of:

(1) $33 if the applicant's residence is a county located within a nonattainment area as defined under Section 107(d) of the federal Clean Air Act (42 U.S.C. Section 7407), as amended, or is an affected county, as defined by Section 386.001, Health and Safety Code;

(2) $28 if the applicant's residence is any other county; or

(3) on or after September 1, 2010 [~~2008~~], $28 regardless of the county in which the applicant resides.

(b) The county assessor-collector shall send:

(1) $5 of the fee to the county treasurer for deposit in the officers' salary fund;

(2) $8 of the fee to the department:

(A) together with the application within the time prescribed by Section 501.023; or

(B) if the fee is deposited in an interest-bearing account or certificate in the county depository or invested in an investment authorized by Subchapter A, Chapter 2256, Government Code, not later than the 35th day after the date on which the fee is received; and

(3) the following amount to the comptroller at the time and in the manner prescribed by the comptroller:

(A) $20 of the fee if the applicant's residence is a county located within a nonattainment area as defined under Section 107(d) of the federal Clean Air Act (42 U.S.C. Section 7407), as amended, or is an affected county, as defined by Section 386.001, Health and Safety Code;

(B) $15 of the fee if the applicant's residence is any other county; or

(C) on or after September 1, 2010, $15 regardless of the county in which the applicant resides.

(b-1) Fees collected under Subsection (b) [~~this subsection~~] to be sent to the comptroller shall be deposited as follows:

(1) [~~(i)~~] before September 1, 2008, to the credit of the Texas emissions reduction plan fund; and

(2) on or [~~(ii)~~] after September 1, 2008, to the credit of the Texas Mobility Fund, except that $5 of each fee imposed under Subsection (a)(1) and deposited on or after September 1, 2008, and before September 1, 2010, shall be deposited to the credit of the Texas emissions reduction plan fund.

(b-2) The comptroller shall establish a record of the amount of the fees deposited to the credit of the Texas Mobility Fund under Subsection (b-1). On or before the fifth workday of each month, the department shall remit to the comptroller for deposit to the credit of the Texas emissions reduction plan fund an amount of money equal to the amount of the fees deposited by the comptroller to the credit of the Texas Mobility Fund under Subsection (b-1) in the preceding month. The department shall use for remittance to the comptroller as required by this subsection money in the state highway fund that

is not required to be used for a purpose specified by Section 7-a, Article VIII, Texas Constitution, and may not use for that remittance money received by this state under the congestion mitigation and air quality improvement program established under 23 U.S.C. Section 149.

(b-3) This subsection and Subsection (b-2) expire September 1, 2010.

SECTION 20. Section 502.1675(c), Transportation Code, is amended to read as follows:

(c) This section expires August 31, 2010 [~~2008~~].

SECTION 21. Section 548.5055(c), Transportation Code, is amended to read as follows:

(c) This section expires August 31, 2010 [~~2008~~].

SECTION 22. Sections 386.001(4), 386.057(e), 387.002, and 387.010, Health and Safety Code, and Sections 548.256(c) and (d), Transportation Code, are repealed.

SECTION 23. The Texas Commission on Environmental Quality shall prepare guidance documents for the rebate grants required by Section 386.117, Health and Safety Code, as added by this Act, not later than January 1, 2006.

SECTION 24. (a) As soon as practicable on or after the effective date of this Act, the governor shall appoint to the Texas Emissions Reduction Plan Advisory Board a representative of the nonprofit organization described by Section 386.252(a)(2), Health and Safety Code, as required by Section 386.058(b), Health and Safety Code, as amended by this Act, to replace the representative of the Texas Council on Environmental Technology serving on that

board on the effective date of this Act.

(b) As soon as practicable on or after the effective date of this Act, the governor, lieutenant governor, and speaker of the house of representatives, by mutual agreement, shall designate the terms of the appointed members of the Texas Emissions Reduction Plan Advisory Board so that the terms of seven appointed members expire on February 1, 2007, and the terms of eight appointed members expire on February 1, 2009, as provided by Section 386.058(e), Health and Safety Code, as amended by this Act.

SECTION 25. Except as otherwise provided by this Act, this Act takes effect September 1, 2005.

President of the Senate

Speaker of the House

I certify that H.B. No. 2481 was passed by the House on April 28, 2005, by a non-record vote; and that the House concurred in Senate amendments to H.B. No. 2481 on May 29, 2005, by a non-record vote; and that the House adopted H.C.R. No. 248 authorizing certain corrections in H.B. No. 2481 on May 30, 2005, by a non-record vote.

Chief Clerk of the House

I certify that H.B. No. 2481 was passed by the Senate, with amendments, on May 20, 2005, by the following vote: Yeas 31, Nays 0; and that the Senate adopted H.C.R. No. 248 authorizing certain corrections in H.B. No. 2481 on May 30, 2005, by a viva-voce vote.

Secretary of the Senate

APPROVED: _____

Date

Governor

APPENDIX 2

Back Trajectory and Emissions Analysis

TCEQ
July, 2005

Introduction

In promulgating the final CAIR rule, EPA relied upon modeling to determine that Texas, as a whole, contributes 0.29 $\mu g/m^3$, with 0.2 $\mu g/m^3$ being "the criterion for determining whether SO_2 and NO_x emissions in a state make a significant contribution to $PM_{2.5}$ nonattainment in another state."[1] However, there is evidence that the majority of the Texas emissions come from East Texas, and that West Texas is unlikely to contribute significantly to nonattainment of the $PM_{2.5}$ NAAQS in Illinois. Since air pollution and transport of air pollution is a function of both emissions and meteorology, EPA should have considered the different emissions and meteorology of East and West Texas, in its review.

Meteorological Evidence

In order to demonstrate the meteorological differences between East and West Texas and the potential for West Texas emissions to impact Illinois, TCEQ relied on a very-well accepted trajectory model, HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory), to answer two questions:

(1) What is the relative likelihood that winds carrying pollution from East and West Texas will arrive in East St. Louis? and

(2) Is there a difference between the contributions from each?

The HYSPLIT model represents state of the science for performing a range of analyses, from simple air parcel trajectories to complex dispersion and deposition simulations. TCEQ used HYSPLIT to compute the trajectories (pathways) showing the hourly movement of air parcels for every day for years representing the CAIR modeling period.

A receptor was placed at a lat/long coordinate in Belleville, Illinois, a suburb of East St. Louis. The HYSPLIT model was run to produce trajectory analyses leading back from this receptor to the source region for the parcel. Analysis 1 was a broad attempt to determine the frequency of air parcels that make it to E. St. Louis from Texas.

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[1] Technical Support Document for the Final Clean Air Interstate Rule, Air Quality Modeling, USEPA, March 2005, pg 43.

Analysis 1:

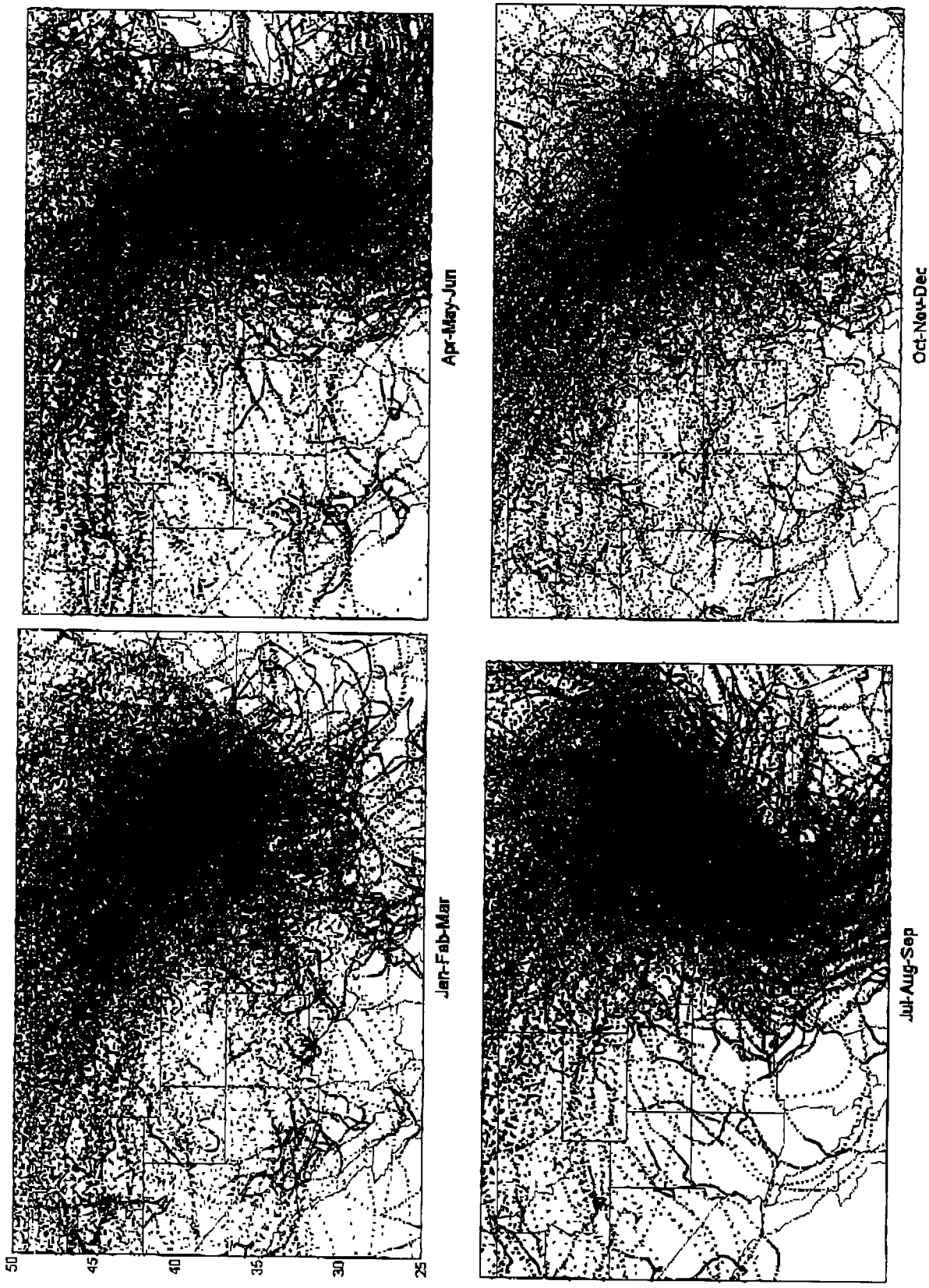
The HYSPLIT model parameters (inputs) for Analysis 1 were:

- Three years (2000-02) of trajectories, centered about the CAIR $PM_{2.5}$ base case modeling year of 2001;
- Wind elevations of 100, 500, and 1300 meters;
- Five days (120 hours) backward trajectories; and
- Start hour of 00:00 UTC. (6 PM standard time)

Endpoints (where the air parcel was at the end of each hour) are generated for every hour of the three years, for each of the three wind elevations. These aggregated back-trajectories for Analysis 1 are provided in the four plots below, and are divided into seasonal plots. These back-trajectory analyses are not pollutant-specific; they simply represent the source and final destination of air parcels.

The following plots demonstrate that, on certain days, air parcels that pass through E. St. Louis, traversed parts of Texas beforehand. These plots also demonstrate that in all four seasons, the number of endpoints is significantly less in the western half of Texas than in the eastern half of Texas, indicating that the likelihood of West Texas influencing E. St. Louis is significantly less than the likelihood of East Texas influencing E. St. Louis.

Results from Analysis 1: Seasonal Back Trajectories for 2000-2002



Analysis 2:

Analysis 1 is further refined in Analysis 2, which is a back-trajectory analysis focusing on EPA's CAIR $PM_{2.5}$ modeling year of 2001. Figure 5 shows the domain and parameters that were selected. The modeled domain is again centered about the receptor of E. St. Louis, so that there is no bias in the analysis. Analysis 2 also precisely defined a line dividing East Texas and West Texas, with 110 counties in East Texas, leaving 144 counties in West Texas.[2] The analysis domain for Analysis 2 was uniformly gridded with 0.5 degree-sized (approximately 30 miles) squares. First, the total number of back-trajectory endpoints (hours) within the domain was counted. Then the number of endpoints that fell within the grid squares that made up East Texas were counted, then the number of endpoints in West Texas grid squares were counted.

Table 1. Back-Trajectory Analysis 2

Region	Percent of Total Geographic Area of TX	Number of HYSPLIT Endpoints	Percentage of Total
West Texas	65%	3178	4%
East Texas	35%	16246	21%
Entire Domain	N/A	76702	100%

Table 1 shows that approximately two-thirds of the geographical area of the state is in West Texas, 4% of the trajectories affecting E. St. Louis come from West Texas, and 21% come from East Texas. So 25% of the back-trajectory endpoints that affect E. St. Louis pass through Texas, but only a small portion of the total come from West Texas for 2001, which is the meterological year that EPA used for CAIR modeling. This analysis clearly demonstrates that West Texas has a low likelihood of affecting E. St. Louis. Further, if West Texas were to be considered a separate region from East Texas, then West Texas would not "significantly contribute" to the nonattainment of E. St. Louis. This argument is demonstrated with the calculations in Table 2, which provides a representation of expected contribution of West Texas to nonattainment in E. St. Louis based on these back trajectories.

Table 2. West Texas "Insignificant" Contribution

EPA $PM_{2.5}$ "significance" level ($\mu g/m^3$)	CAIR's Total Texas Contribution[3] to E. St. Louis ($\mu g/m^3$)	West Texas % of Total Texas	West Texas Contribution to E. St. Louis ($\mu g/m^3$)
0.2	0.29	4/25 = 16%	<0.05

Since Table 2 shows that the West Texas Contribution to E. St. Louis would be approximately 0.05 $\mu g/m^3$, which is much less than the EPA definition of "significant contribution", West Texas does not significantly contribute to the $PM_{2.5}$ nonattainment of E. St. Louis, nor any other areas of the eastern US that were modeled by EPA for CAIR $PM_{2.5}$.

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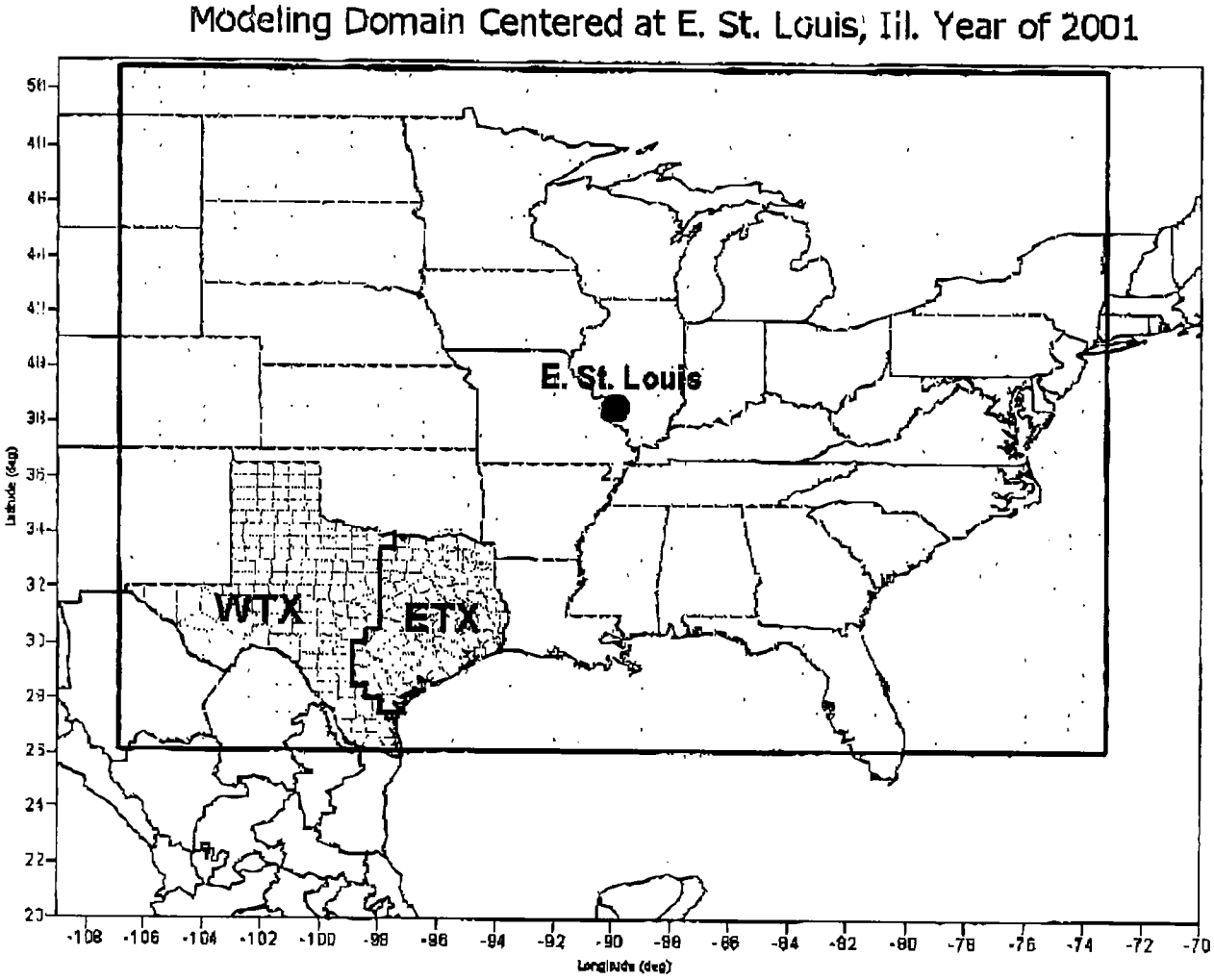
[2] 30 TEX. ADMIN. CODE § 117.135 and Texas Utilities Code, § 39.264.

[3] The contribution is based on an average annual predicted concentration of $PM_{2.5}$ (the annual $PM_{2.5}$ NAAQS is 15 $\mu g/m^3$).



Domain limits are defined by the blue box:
26 <= latitude <= 51 and -107 <= longitude <= -73
where latitude and longitude are in degrees.

The magenta line divides East and West Texas.
The light blue dots represent the lower left corner of each grid cell.

HYSPLIT Back trajectories are defined as :
Start Hr. 0:00 UTC
5 days back (120 Hrs)
Heights of 100, 500 and 1300 meters
From year of 2001
Centered at latitude of 38.52075 and longitude of -89.98773.

Figure 5. Analysis 2

Analysis 3:

Analysis 3 was performed to provide higher resolution to the previous analyses. Cities that span the geographical extent of Texas were selected, four in West Texas and four in East Texas. Analysis 3 was performed using the domain and parameters of Analysis 2. A two-by-two grid (approximately 60 miles) square was centered as closely as possible around each of the cities. The HYSPLIT endpoints were counted within each area. Table 3 presents the results of Analysis 3.

Table 3. Back-Trajectory Analysis 3

Region	City	Number of HYSPLIT Endpoints	Percentage of Total Domain Endpoints
West Texas	El Paso (far west)	39	0.05%
	Borger (NE Panhandle)	45	0.06%
	Edinburg (far south)	65	0.08%
	San Angelo (midpoint of other 3)	100	0.13%
East Texas	San Antonio (southwestern extent of E. Tx)	93	0.12%
	Dallas (north central)	204	0.27%
	Longview (far east)	323	0.42%
	Houston (southeast)	3660	4.77%
Entire Domain	N/A	76702	100%

Since each of the eight cities is defined by the same area (grid cells), the number of endpoints is directly proportional to the density of hourly air parcel endpoints. One conclusion that can be inferred from the results of Table 3, is that distance from E. St. Louis is not the only factor that determines the density of air parcel endpoints. This is most readily witnessed by the fact that Houston has a higher density than San Angelo, even though they are about the same distance from E. St. Louis. Similarly, Borger and Dallas are approximately the same distance from E. St. Louis, yet Borger contributes significantly less than does Dallas. Table 3 demonstrates that West Texas cities contribute significantly less than do East Texas cities.

Emissions Evidence

West Texas emissions are small compared to East Texas, as evidenced by the regional SIP and East Texas regulations that are already in place. In analyzing the difference in emissions between East and West Texas, EPA's Final CAIR Modeling files were downloaded and extracted. Correspondence and conversations with Marc Houyoux and Ron Ryan of EPA verified the "final" modeling input files for 2010. Table 4 summarizes the emissions that EPA modeled for Texas. This analysis relied upon extracted East and West Texas sources from the files via FIPS county codes.

Table 4. Point Source Emissions Used[1] in the 2010 CAIR Modeling

Source Type	Percent NO_x Emissions From West Texas and El Paso	Percent SO_2 Emissions From West Texas and El Paso	Percent NO_x Emissions From East Texas	Percent SO_2 Emissions From East Texas
IPM Point Source Emissions	25%	13%	75%	87%
Non-IPM Point Source Emissions	32%	32%	68%	68%
Total Point Source Emissions	**30%**	**21%**	**70%**	**79%**

[1] Data downloaded from EPA CAIR Modeling files ftp site:
IPM files dated 8/10/2004: (egu047idasum_cp.TXT: SMOKE 2010 Base EGU inventory input file for use from May-Sep; egu047idawin_cp.TXT: SMOKE 2010 Base EGU inventory input file for use from Jan-Apr & Oct-Dec), and non-IPM file dated 6/25/2004:
(ptinv_o.ptnonipm.01ad_10_base_wfueluse.ida.txt)

Table 4 demonstrates that West Texas makes up only 30% of the total Texas NO_x modeled in CAIR 2010 and only 21% of the total SO_2 in Texas. Thus, emissions comparisons are evidence that West Texas is a much smaller contributor of SO_2 and NO_x, which are precursors to PM2.5.