

Jon Niermann, *Chairman*  
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Toby Baker, *Executive Director*



## TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

*Protecting Texas by Reducing and Preventing Pollution*

June 21, 2022

United States Environmental Protection Agency  
Docket ID No. EPA-HQ-OAR-2021-0668  
[Submitted electronically through [www.regulations.gov](http://www.regulations.gov)]

Re: Comments on the United States Environmental Protection Agency's (EPA's) Proposed Federal Implementation Plan (FIP) Addressing Regional Ozone Transport for the 2015 Ozone National Ambient Air Quality Standard (NAAQS)

Dear Ms. Selbst:

The Texas Commission on Environmental Quality (TCEQ) appreciates the opportunity to comment on the EPA's Proposed FIP Addressing Regional Ozone Transport for the 2015 Ozone NAAQS. Detailed comments on the proposal are enclosed. If there are any questions concerning the TCEQ's comments, please contact Donna Huff, Deputy Director, Air Quality Division, at 512-239-6628 or [donna.huff@tceq.texas.gov](mailto:donna.huff@tceq.texas.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Toby Baker".

Toby Baker  
Executive Director

Enclosure

# COMMENTS BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY REGARDING THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY'S (EPA'S) PROPOSED FEDERAL IMPLEMENTATION PLAN (FIP) ADDRESSING REGIONAL OZONE TRANSPORT FOR THE 2015 OZONE NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS)

## I. SUMMARY

On April 6, 2022, the EPA proposed FIP requirements to address federal Clean Air Act (FCAA) “good neighbor” or “interstate transport” obligations for the 2015 ozone NAAQS. The proposal establishes nitrogen oxides (NO<sub>x</sub>) emissions budgets for fossil fuel-fired electric generating units (EGUs) in 25 states to participate in an allowance-based ozone season (May through September) trading program beginning in 2023. The proposal also establishes NO<sub>x</sub> emissions limitations for certain other industrial stationary (non-EGU) sources in 23 states with an earliest possible compliance date of 2026. These industrial source types are: Reciprocating internal combustion engines in Pipeline Transportation of Natural Gas; kilns in Cement and Cement Product Manufacturing; boilers and furnaces in Iron and Steel Mills and Ferroalloy Manufacturing; furnaces in Glass and Glass Product Manufacturing; and high-emitting equipment and large boilers in Basic Chemical Manufacturing, Petroleum and Coal Products Manufacturing, and Pulp, Paper, and Paperboard Mills. The proposed control measures for the identified EGU and non-EGU sources apply to both existing units and any new, modified, or reconstructed units meeting the proposal’s applicability criteria.

## II. COMMENTS

### A. *General Comments*

**Based on the numerous technical and legal errors discussed in our comments, the TCEQ respectfully requests that the EPA withdraw its proposed FIP, either in whole, or in part as it pertains to Texas.**

The TCEQ appreciates the opportunity to comment on the EPA’s proposed FIP addressing regional ozone transport for the 2015 Ozone NAAQS. For the reasons discussed elsewhere in these comments, the EPA’s proposed FIP is arbitrary and capricious, and inconsistent with statutory authority. In proposing the FIP, the EPA relies on factors that Congress has not intended it to consider, entirely failed to consider important aspects of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. In addition, the EPA’s standards under the NAAQS already protect all populations, including sensitive populations. As such, the language in Section VIII of the FIP would not enhance the responsibilities of Texas.

Based on the numerous technical and legal errors discussed in our comments, the TCEQ respectfully requests that the EPA withdraw its proposed FIP, either in whole, or in part as it pertains to Texas. In the alternative, the TCEQ respectfully requests that the EPA address and remedy the numerous technical and legal errors identified by the TCEQ.

In addition, the EPA’s proposed FIP has intruded into the province of other state and federal regulatory bodies regarding the reliability of the electric grids in Texas and the United States. The EPA has intentionally disfavored a necessary contingent of generating capacity in the United States in its illegal attempt to shift generation resources. The dire consequences that may flow from the EPA’s proposal could jeopardize the health and welfare of the public as well as have significant economic impacts. The EPA’s actions unconstitutionally impinge on the separation of powers and unreasonably usurp matters reserved to the legislative branch or which have been solely delegated to other regulatory agencies. The EPA has failed to consider these important impacts to the United States’ electric grid and the economy of our

nation in its proposed FIP. The EPA should provide sufficient time for state and federal utility regulatory agencies as well as independent system operators and regional transmission operators to provide analysis concerning the scope and impact that the EPA's proposed FIP has on the ability of states to maintain electricity generation sufficient to meet demand.

**The EPA should approve Texas' state implementation plan (SIP) revision for the 2015 eight-hour ozone NAAQS pertaining to the federal Clean Air Act (FCAA), §110(a)(2)(D)(i)(I) requirement to address interstate transport.**

The EPA should approve the Texas transport SIP for the legal, practical, and technical reasons provided to the EPA by the TCEQ in its April 25, 2022, comments concerning the proposed transport SIP disapproval. On February 22, 2022, the EPA proposed to disapprove the portion of Texas' 2015 Ozone NAAQS Transport SIP Revision, submitted to the EPA on August 17, 2018, pertaining to the FCAA, §110(a)(2)(D)(i)(I) requirement to address the interstate transport of air pollution that will significantly contribute to the nonattainment or interfere with the maintenance of the 2015 eight-hour ozone NAAQS in other states. The transport analysis provided by the TCEQ in its August 17, 2018, submittal fully addressed the transport requirements of FCAA, §110(a)(2)(D)(i)(I) and for this reason, and as discussed in the TCEQ's comments provided on the EPA's February 22, 2022, proposal, the TCEQ opposes any disapproval of its 2015 Ozone NAAQS Transport SIP Revision and the subsequent inclusion of Texas in the proposed transport FIP.

**The proposed FIP and Texas SIP disapproval both are based on the EPA acting in a manner that is inconsistent with its own guidance and thus should be reversed. As noted in the TCEQ's comments on the proposed SIP disapproval, the EPA's method for assessing significant contributions and related control requirements is flawed, and an inappropriate basis for costly requirements.**

The inclusion of Texas in the proposed FIP is dependent on the EPA finalizing its proposed disapproval of the transport SIP that Texas timely submitted for the 2015 ozone NAAQS. As extensively documented in the comments that Texas submitted on the proposal, the EPA's proposed disapproval is arbitrary and capricious and should be withdrawn. The EPA specifically allowed states to use any of several different methods to demonstrate compliance with transport obligations. The EPA's proposed disapproval grossly mischaracterizes the demonstration that Texas submitted when it states that Texas did not appropriately consider whether any emissions from Texas contributed to nonattainment or interference with maintenance at potentially linked monitors.

The EPA purports to allow states flexibility in approaches to demonstrating that they meet transport obligations, including in its discussion of the proposed Texas disapproval (see 87 *Federal Register* (FR) 9798, at 9831-32). However, the EPA then evaluates submitted transport SIPs on its preferred method, even though that is not required for approval. The EPA continues to insist that if a state has emissions that can mitigate the 0.7 ppb ozone concentration used to link it to downwind monitors, and if so, that is enough, without following the logical next step to determine if those emissions actually contribute in a significant manner to actual nonattainment or maintenance issues at those monitors. More specifically, the EPA continues to refuse to acknowledge the need to first make a determination as to whether linked upwind states emissions actually contribute significantly to ozone concentrations at the downwind monitors taking into consideration the relationship of all emissions (transported and local) with meteorology and other local specific factors.

The Texas demonstration relied upon the most recent guidance available at the time when it developed its submission: the EPA Notice of Data Availability of Preliminary Interstate Ozone Transport Modeling Data for the 2015 Ozone NAAQS published on January 6, 2017 (82 FR 1733). The TCEQ should have been able to rely on this guidance, especially since the EPA did not release actual guidance in a timely manner to assist states in developing SIP revisions to

meet their transport obligations. The TCEQ's detrimental reliance on the available guidance should not allow the EPA to simply ignore the actual demonstration that was submitted to the state, just because they don't agree with the way in which Texas conducted that demonstration. The EPA failed to provide Texas with formal comments on the adequacy of its analysis during the comment period on the SIP, or any other type of opportunity to make changes to address issues that the EPA used to propose disapproval of the Texas SIP submittal. Instead, the EPA developed a FIP and then began the process of dealing with the backlog of SIPs timely submitted. States, including Texas, met their statutory obligations, as the EPA continued to ignore its own.

**The EPA prematurely prepared a proposed FIP before finalizing action on Texas' timely submitted SIP revision to address 2015 eight-hour ozone standard interstate transport requirements.**

In preparing and proposing a FIP prior to SIP disapproval, the EPA failed to observe procedures required by law. Texas timely submitted its 2015 Ozone NAAQS Transport SIP Revision to the EPA on August 17, 2018. On February 22, 2022, three and a half years later, the EPA proposed disapproval of the Texas transport SIP. Throughout this time, instead of working with Texas cooperatively, the EPA developed a proposed FIP. Then prior to final SIP disapproval, the EPA proposed a FIP.

Under FCAA §110(c)(1), the Administrator shall promulgate a FIP at any time within two years *after* the Administrator "disapproves a State Implementation Plan in whole or in part, unless the State corrects the deficiency, and the Administrator approves the plan or plan revisions, before the Administrator promulgates such a Federal Implementation Plan." The EPA has not yet disapproved the Texas transport SIP, and yet has clearly signaled that it intends to include Texas in such a FIP directly upon finalizing the disapproval action. Although the Supreme Court has recognized that "disapproval of a SIP, without more, triggers the EPA's obligation to issue a FIP" and this action can occur "at any time" within those two years (*EPA v. EME Homer City Generation LP, et. al.*, 572 U.S. 489, 508 (2014)), in this instance the EPA has not disapproved Texas' SIP. And unlike the fact pattern in *EME Homer*, Texas has not had an opportunity to challenge the EPA's disapproval of that SIP. Although the EPA is under no obligation to wait two years to issue a FIP, it does have to comply with the congressional scheme. The Court said that the EPA did not have to give states an opportunity to correct a SIP before issuing the FIP. *Id.*, at 509. But that is not the question here. Instead, in the present case, the EPA is stating that they not only can, but "must necessarily be able to" propose a FIP before taking final action to disapprove a SIP. That was not the holding in *EME Homer City* and is inconsistent with the Congress' SIP and FIP schedule in the FCAA. Instead, here the EPA has conducted extensive work to include Texas in a proposed FIP to address interstate transport for Texas under the 2015 eight-hour ozone standard before disapproval of Texas' SIP. Indeed, the EPA proposed the FIP forty-three days after proposing to disapprove the Texas SIP submittal. This was before the comment period on the proposed disapproval was even over, and well before taking any final action on the Texas SIP submittal. It is the final disapproval of the SIP that triggers the EPA's authority to issue the FIP, not proposing a disapproval.

Additionally, the EPA never indicated that Texas' SIP was inadequate during the years of work that went into the development of this FIP, nor was Texas afforded any opportunity to correct the deficiencies that the EPA believes are present in the SIP. Had the EPA reviewed the 2015 Ozone NAAQS Transport SIP Revision before developing a proposed FIP, the purpose of which is to correct deficiencies in such a SIP, Texas would have had the opportunity contemplated by the FCAA to correct any problems with its SIP in a timely fashion and avoid the imposition of the FIP. The EPA's failure to enact rules, issue timely guidance, or provide the technical basis upon which states would be judged well in advance of the state transport submittal

deadlines is arbitrary and capricious and undermines the cooperative federalism principles inherent in the FCAA. In this case, the EPA is indeed altering Congress' SIP and FIP schedule.

**The TCEQ supports and incorporates all comments submitted by the Public Utility Commission of Texas (PUCT) and the Electric Reliability Council of Texas (ERCOT) on the proposed rule. The EPA should work with the PUCT and ERCOT to evaluate the impact of the proposed FIP on electric reliability in Texas rather than rely upon the EPA's modeling.**

The TCEQ urges the EPA to seriously consider the comments submitted by the PUCT that incorporate ERCOT's analysis of the proposed rule. The complexities involved with determining potential reliability impacts to the electrical power system are beyond the EPA's superficial analysis. The PUCT and ERCOT are the most knowledgeable and qualified groups to assess the impacts of the EPA proposed rules on the reliability of the electrical power system in the ERCOT region and Texas as a whole. The EPA failed to reach out to the independent system operators and regional transmission organizations, who are the technical experts in impacts to the national electric grid and failed to provide adequate time for these groups to review the proposal and conduct modeling to determine impacts to their systems. Instead of relying on the EPA's faulty assumptions and modeling to assess reliability impacts, the EPA should be working closely with the regional agencies that are tasked with monitoring and assuring the reliability of the electrical power system to ascertain the true impact of the EPA's rules on Texas' and the nation's electrical power system.

The EPA failed to account for the impacts of potentially increased electric pricing, or even a lack of available generation leading to potential brownouts or blackouts, on all consumers in Texas. These impacts will likely significantly impact those consumers with limited resources. It is unarguable that people suffer severe and/or critical health effects when they cannot access electricity during a Texas summer, prime ozone season, when EGUs will be most pressed to both operate and to meet the emission limits of the proposed rule. Generation shifting, or other attempts by EGUs to meet rule requirements that end up with decreasing generation, could have harmful impacts felt across Texas. The EPA has failed to consider or account for these consequences in its blithe assertion that generation shifting is an available means of meeting its proposed rule.

**It is outside the EPA's authority to require electric generation shifting as a control strategy for air emissions. The EPA has designed the proposed FIP to require EGUs to consider generation shifting as a practical and normal procedure for meeting the requirements of the rule, without regard for any potential impacts to electric reliability or pricing.**

The EPA has mistakenly stated that it is reasonable to quantify and include emission reduction potential from generation shifting because "all EGUs that would be regulated by this proposed rule participate in highly coordinated, interconnected systems where generation shifting will inevitably occur in response to pollution control requirements." Despite making this statement, the EPA is not an expert on electric generation or electric reliability, and accordingly fails to even mention potential concerns that could arise from generation shifting. Additionally, the EPA fails to consider the impacts of attempting to meet the rule requirements with generation shifting on electric reliability or utility pricing. Texas has limited connections with other grids, which would exacerbate reliability and pricing impacts. The EPA has failed to account for the impacts of increased electric pricing, or even a lack of available generation leading to potential brownouts or blackouts, on any community in Texas. It is not, in fact, reasonable, practicable, or feasible for EGUs to simply shift demand freely inside or outside ERCOT. The EPA's assertions instead highlight its lack of understanding of the myriad complexities in providing and assuring electric power. The EPA should defer to the PUCT's and ERCOT's expertise on these issues and correct its mistaken assumptions. The EPA is owed only the most limited of deference for matters outside its

expertise, and it is inarguable that the EPA has no expertise on grid reliability or related issues.

**The EPA did not provide affected stakeholders sufficient time to allow for a comprehensive evaluation of the technical analysis relied upon for this action. The EPA's failure to engage stakeholders and provide technical information prior to proposal resulted in a lack of transparency and a barrier for affected stakeholders to sufficiently identify and comment on issues.**

The EPA did not release the full technical analyses relied upon for this action ahead of proposal, and therefore affected state governments and other stakeholders (including affected industry and RTOs) have not been provided with sufficient time to assess the technical details supporting this proposed action. In particular, the EPA's failure resulted in the RTOs having inadequate time for necessary electric reliability studies. The EPA's proposed action was accompanied by 14 Technical Support Documents, which included several lengthy documents and data files. The EPA's contorted description of the complex analyses used hindered identification of the underlying assumptions and conceptual steps. It is particularly egregious of the EPA to fail to provide stakeholders with adequate time to evaluate the proposed requirements, as this is the only opportunity for states to determine if the EPA's proposal results in overcontrol and demonstrate to the EPA the flaws in its analysis. For example, states did not have sufficient time to complete the comprehensive modeling analysis necessary to determine the impacts from the EPA's use of inaccurate data and erroneous assumptions. States must make any such determination and provide comments to the EPA to preserve their opportunity to bring any instances of prohibited overcontrol or other errors to the attention of a reviewing court. The EPA received numerous requests for extension of the comment period, but the EPA only provided an additional 15 days for stakeholders to evaluate the proposal. The EPA should provide more time for stakeholders to evaluate these matters of great importance.

## ***B. Technical Comments***

**The basis for the requirements imposed on Texas is invalid because the model performance for the EPA's photochemical modeling at the seven monitors linked to Texas does not meet the recognized performance benchmarks for ozone.**

The EPA fails to establish the cause of the relevant low bias in the Midwest region, and it is inappropriate for the EPA to rely on the 2016v2 modeling platform in establishing requirements in this proposed FIP. The EPA linked Texas with seven monitors located in Illinois (IL) and Wisconsin (WI) based on photochemical modeling using the EPA's 2016v2 platform in Step 1 of the four-step framework. As noted in the EPA's 2018 modeling guidance,<sup>1</sup> performance benchmarks established in literature reviews from Emery et al. (2017)<sup>2</sup> and Simon et al. (2012)<sup>3</sup> are used to compare photochemical model performance with other peer-reviewed studies. At the seven monitors linked to Texas, the EPA's 2016v2 modeling is uniformly biased low, with five of the seven monitors below the Emery et. al. (2017) criteria range of -15% for normalized mean bias during May through September on days with observed eight-hour ozone averages of 60 parts per billion (ppb) or more (Table 1.

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<sup>1</sup> EPA, 2018. Modeling Guidance for Demonstrating Air Quality Goals for Ozone, PM2.5 and Regional Haze. Accessed at: [https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling\\_guidance-2018.pdf](https://www.epa.gov/sites/default/files/2020-10/documents/o3-pm-rh-modeling_guidance-2018.pdf)

<sup>2</sup> Emery, C., Liu, Z., Russell, A.G., Odman, M.T., Yarwood, G., Kumar, N., 2017. Recommendations on Statistics and Benchmarks to Assess Photochemical Model Performance, Journal of the Air and Waste Management Association, 67:5, 582-598

<sup>3</sup> Simon, H., Baker, K. R., Phillips, S., 2012. Compilation and interpretation of photochemical model performance statistics published between 2006 and 2012, Atmos Environ, 61, 124-139.

*Model Performance at Monitors Linked to Texas*). The Kenosha, WI (550590019) monitor has a total normalized mean error a little over the 25% Emery et al. (2017) criteria range. This indicates model performance at these monitors is in the lower third of published performance reviews. In such instances, Emery notes that it is “critical to investigate the reasons for poor performance and to take measures to improve model performance before using the results for regulatory action.”

In the *Air Quality Modeling Technical Support Document*,<sup>4</sup> the EPA acknowledges the significant low bias in the Midwest region but does not further evaluate model performance to determine if the cause of the low bias is due to meteorological or emissions inputs. Without establishing the cause of the low bias, it is inappropriate for the EPA to rely on the credibility of the modeling platform in establishing requirements in this proposed FIP. In instances when operational performance metrics indicate that there is poor performance, the EPA’s 2018 modeling guidance recommends the use of diagnostic and dynamic model performance evaluation to gain insights into the reasons for poor performance. The model performance evaluation presented to establish the scientific credibility of the EPA’s 2016v2 modeling platform and support this proposed action relies on broad, region-wide statistics that exceed the spatial recommendations of Emery and a graphical evaluation at a handful of sites (most of which show significant bias). The EPA should evaluate model performance to determine the cause of the low bias and use the recommended spatial extent of evaluation statistics.

**Table 1. Model Performance at Monitors Linked to Texas.**

Air Quality Site Identifier	State	County	Normalized Mean Bias (%)	Normalized Mean Error (%)
170310001	IL	Cook	-11.92	16.13
170310032	IL	Cook	-20.75	21.14
170314201	IL	Cook	-16.83	18.47
170317002	IL	Cook	-14.50	15.20
550590019	WI	Kenosha	-24.36	25.29
550590025	WI	Kenosha	-18.60	18.94
551010020	WI	Racine	-23.49	24.16

**The EPA’s analysis is inconsistent with standard modeling procedures because it does not use the same grid cell and same days for the design value calculation in Step 1 as for the contribution calculation in Step 2.**

There are several inconsistencies in the grid cells and days used in the estimation of state contributions at monitors. The contribution calculation in Step 2 uses the average contribution from grid cells centered on the monitor on the top 10 modeled days in the *future* year. This is multiplied by the projected average future year design value (DVF) for the monitor. However, the projected average DVFs calculated for the monitors in Step 1 use the grid cell with the highest modeled ozone concentration among grid cells in a 3-by-3 monitor-centered array, excluding those cells comprised mostly of water, on the top 10 modeled days in the *base* year. The EPA notes in the *Air Quality Modeling Technical Support Document* (page 11) that, as recommended by the EPA’s modeling guidance, the same grid cell is used for base and future components of the DVF calculation to maintain consistency. By using different grid cells and days in Step 1 versus Step 2, the EPA is introducing inconsistencies into the

<sup>4</sup> EPA, 2022. Air Quality Modeling Technical Support Document. Accessed at: [https://www.epa.gov/system/files/documents/2022-03/aq-modeling-tsd\\_proposed-fip.pdf](https://www.epa.gov/system/files/documents/2022-03/aq-modeling-tsd_proposed-fip.pdf)

technical analysis. Further, the EPA is weakening the relationship between Step 1 and Step 2 by focusing solely on future year contributions without linking it to the projected DVFs that warranted the determination of state contribution. The EPA should use modeled concentrations from the same grid cells and days in Steps 1 and 2 to maintain consistency between Steps 1 and 2 and ensure that linkages are based on estimated state contributions to the nonattainment/maintenance design values of those monitors rather than other factors.

**The justification for the choice of control strategies is insufficient because it is based on faulty assumptions applied in the Air Quality Assessment Tool (AQAT).**

The EPA uses the AQAT to assess the impact of different NO<sub>x</sub> reductions in upwind states on the air quality of downwind monitors but relies on untested assumptions. Though the AQAT utilizes modeling data, the EPA relies on several assumptions without justification as part of constructing and using the AQAT. Several of these key assumptions are buried in footnotes and the EPA does not provide analysis or data to support these assumptions. The failure of the EPA to provide a rationale for these central assumptions is in error. Several key erroneous assumptions made by the EPA include:

- Ozone response to NO<sub>x</sub> anthropogenic emissions reductions will remain linear since the percent change in total anthropogenic emissions for most states considered in the various control/mitigation scenarios are only a few percent.
- Downwind air quality improvement is indifferent to the type or location of sources from which the reductions are obtained.
- Calibration factors used in the EPA's AQAT is sufficient to alleviate the concerns related to the linear ozone response assumption.
- Ozone response to non-anthropogenic emissions changes will remain proportional to ozone response to anthropogenic emissions changes across all control/mitigation strategies evaluated.
- Ozone response to NO<sub>x</sub> reductions is significantly greater than the ozone response to volatile organic compound reductions for all receptor-state pairs.

While each untested assumption by itself creates uncertainties in the estimated air quality impacts, the collective impact of all the above assumptions could lead to a significantly inaccurate estimation of impacts. For example, while the change in total anthropogenic emissions from the 2026 base and 2026 control (30% NO<sub>x</sub> reductions from EGU and non-EGU sectors) scenario is only a few percent, indicating a possible linear response, the change in emissions from the Texas EGU sector in the 2026 proposed rule emissions scenario is 44%, which could potentially result in a non-linear ozone response. By assuming that impacts of emission reductions in different sectors are similar, the EPA calculated calibration factors based on a single control scenario (30% NO<sub>x</sub> reductions from EGU and non-EGU sectors) and failed to address how its assumptions affect the accuracy of the AQAT results. The EPA should review the impact of assumptions, provide the requisite rationale for each of them, and ensure that AQAT provides accurate estimates and assessments of the impact of NO<sub>x</sub> emission reductions on ozone concentrations.

**The EPA's analysis does not account for the varied source types and distances in large states such as Texas, which could result in insufficient justification for the emissions controls required in the proposal.**

Assuming that reductions to NO<sub>x</sub> emissions from all source types will lead to equivalent downwind impacts to air quality neglects the inherent differences in long-range transport of emissions from low-level versus elevated sources. Elevated sources, such as tall stacks from EGUs, generally lead to greater impacts to downwind areas than ground-level sources such as mobile emissions that have greater local impacts. This assumption may bias the estimation of



impacts for states with many different source types, such as Texas, and the EPA must ensure it has correctly accounted for the elevation of sources.

Another essential assumption in the EPA's estimation of downwind air quality improvements is that the location of emissions changes within an upwind state were considered equal. The EPA did not provide a rationale for why this assumption was appropriate for states with a large geographical area such as Texas, which could lead to an inaccurate estimate of impacts to downwind sources. Such an inaccurate estimate could be determinative of whether a state should be included in the proposed FIP—the EPA's failure to justify this central assumption is in error. The EPA should correct this error, explain its rationale, and verify the accuracy of its estimates.

**Stakeholders cannot adequately assess if the proposed reductions are necessary since the EPA's definition of "significant contribution to nonattainment or interference to maintenance" is unclear and appears to conflate the ability to mitigate contributions with whether the contribution is itself significant.**

The EPA does not clearly define what is a "significant contribution to nonattainment or interference to maintenance." The TCEQ urges the EPA to first provide a definition and methodology that clearly establishes that modeled contributions from linked upwind states significantly contribute to nonattainment at downwind monitors prior to evaluating the emissions reductions potential of a linked state, and second the EPA should reevaluate its proposed FIP and the proposed Texas transport SIP disapproval in light of the update. The EPA states that Step 3 of its four-step methodology determines if linked states have sufficient emission reductions to remove the 0.7 ppb contribution to a downwind nonattainment or maintenance monitor identified in Steps 1 and Steps 2. The EPA does not explain why the potential for emissions reductions that *could* reduce contributions below the 0.7 ppb threshold is an indicator or definition of significant contribution to nonattainment or interference to maintenance. The EPA appears to be conflating the ability to mitigate contributions with whether the contribution itself is significant in its approach. Significant contribution should be established prior to determining if emissions reductions are needed to remove the identified significant contribution as the TCEQ did in its transport SIP analysis. Failure to do so could lead to overcontrol. Because the EPA did not do so, it has failed to provide a rational justification for why areas are significantly linked to downwind receptors; nor has the EPA provided a rational justification for why the required reductions are not overcontrol. See *EME Homer City*, 572 US 489, 523-524 (2014)), stating that a state may bring a particularized as-applied challenge if it believes the EPA is requiring reductions "beyond the point necessary to bring all downwind States into attainment".

**The EPA does not show that the proposed FIP avoids overcontrol of emissions in linked states.**

The EPA's reliance on the AQAT alone is not sufficient to determine if emissions are overcontrolled due to the proposed FIP. The EPA acknowledges in the TSD that the AQAT method is not the optimal approach but chooses to continue using a less precise method to justify emission reductions: "*Air quality modeling would be the optimal way to estimate the air quality impacts at each cost threshold level from EGUs and non-EGUs emissions reductions.*" and "*EPA recognizes that AQAT is not the equivalent of photochemical air quality modeling but in the Agency's view is adequate to this purpose.*" At a minimum, the EPA should perform one accurate and sufficient photochemical modeling run with the final set of selected control strategies to verify that the reduction in state contributions and design value are similar to those estimated by the AQAT tool.

**Future year NO<sub>x</sub> emissions from airports in Texas are overestimated in the EPA’s 2016v2 modeling platform that is used in the modeling that supports the proposed FIP.**

The future year NO<sub>x</sub> emissions from airports in Texas ozone nonattainment areas, Houston-Galveston-Brazoria (HGB), Dallas-Fort Worth (DFW), and San Antonio (SAN), are overestimated in the EPA’s 2016v2 modeling platform. The TCEQ contracted with the Texas Transportation Institute (TTI) in 2021 to develop future year emissions inventories for 2023 and 2026 among other years using the latest available information<sup>5</sup>. A comparison of TTI’s 2023 and 2026 emissions in tons per year (tpy) to the EPA’s 2023\_fj and 2026\_fj used in the EPA 2016v2 platform, as shown in Table 2. *Comparison of Future Year NO<sub>x</sub> Emissions for the Airport Sector between the EPA 2016v2 and TTI*. This comparison shows significant overestimation in NO<sub>x</sub> emissions ranging from 25% to 43%. This overestimation could lead to inaccurate modeled contributions and lead to overcontrol to offset nonexistent emissions. The EPA should update the emissions in its modeling platform to the TTI emissions inventories and reevaluate its proposed FIP and the proposed Texas transport SIP disapproval in light of the update.

**Table 2. Comparison of Future Year NO<sub>x</sub> Emissions for the Airport Sector between the EPA 2016v2 and TTI.**

Area	2023 EPA 2016v2 Emissions (tpy)	2023 TTI Emissions (tpy)	Percent Difference	2026 EPA 2016v2 Emissions (tpy)	2026 TTI Emissions (tpy)	Percent Difference
DFW	9,499.12	5,402.42	+43%	10,071.43	6,200.89	+38%
HGB	4,511.63	2,576.62	+43%	4,807.79	3,140.64	+35%
SAN	883.33	591.03	+33%	921.18	688.84	+25%

**The EPA relies on inaccurate and incomplete data and unexplained assumptions that overestimate the NO<sub>x</sub> emissions reductions from non-EGU sources and the resulting ozone decreases.**

The TCEQ recommends that the EPA correct the inaccuracies and deficiencies described below to avoid the overestimation of emissions reductions from non-EGU sources in several sectors. In its analysis of non-EGUs, the EPA accounts for inapplicable sources, ignores applicable sources, and overlooks existing emissions controls. The EPA’s reliance on such inaccurate and incomplete data and unexplained assumptions should be corrected.

The EPA’s analysis on Natural Gas Pipeline Transmission sources does not correspond with the proposed FIP’s requirements. The EPA’s proposed FIP would control emissions from engines rated 1,000 horsepower or greater. However, the EPA’s technical analysis calculates NO<sub>x</sub> emissions reductions from only 20 compressor engines in Texas in the natural gas pipeline transmission sector using reported NO<sub>x</sub> emissions over 100 tpy as a surrogate. The EPA’s use of this surrogate data underestimates the impact of the proposed FIP, since reported emissions inventory data indicates 600% more engines (at least 120 engines) in Texas would be impacted. Additionally, TCEQ rules already require at least 10% of potentially impacted engines to be controlled to or below the EPA’s proposed emissions limits, so no further emissions reductions will be achieved from these engines.

The EPA’s proposed emissions limits for Cement and Concrete Product Manufacturing sources apply to all cement kilns in Texas based on the kilns’ actual and/or permitted NO<sub>x</sub> emissions of 100 tpy. However, the EPA included only 12 of the existing 15 cement kilns in Texas in its NO<sub>x</sub> emissions reductions analysis. It is unclear why the EPA excludes from the analysis three cement kilns located in Bexar, Comal, and Ellis Counties. The EPA also does not

<sup>5</sup> [2020 Texas Statewide Airport Emissions Inventory and 2011 through 2050 Trend Inventories](#)

account for all existing kiln NO<sub>x</sub> controls and has therefore overestimated the amount of available NO<sub>x</sub> emissions reductions from Texas cement kilns and inaccurately assessed the availability of cost-effective controls. In Texas, 14 of the 15 cement kilns are already equipped with selective non-catalytic reduction (SNCR); however, the EPA assumed that no cement kilns in Texas are equipped with SNCR. In addition, some Texas cement kilns have other existing controls such as low-NO<sub>x</sub> burners that are not included in the EPA's analysis. Finally, the EPA did not consider that the majority of Texas cement kilns (nine of 15) are already permitted below the proposed emissions limits for their kiln type, rendering additional NO<sub>x</sub> emissions reductions unlikely. The potential NO<sub>x</sub> emissions reductions during the ozone season are less than the EPA stated when the cement kilns that are already meeting the proposed emissions limits based on TCEQ permit requirements are excluded.

The EPA did not account for existing NO<sub>x</sub> controls on one of the three glass furnaces it identified as subject to the proposal and has therefore overestimated the amount of NO<sub>x</sub> emissions reductions from Texas glass furnaces. One of the three furnaces is equipped with oxy-firing and operates below the EPA's proposed limit based on the most recent (2020) TCEQ emissions inventory data.

Potentially affected Iron, Steel, and Ferroalloy Manufacturing sources in Texas were not included in the EPA's analysis. Based on an analysis of TCEQ permit and 2020 NO<sub>x</sub> emissions inventory data, an estimated eight sites may have applicable emissions units. The EPA's analysis also did not include potentially affected Basic Chemical Manufacturing, Petroleum and Coal Products Manufacturing, and Pulp, Paper, and Paperboard Mills. Based on an analysis of TCEQ permit and 2020 NO<sub>x</sub> emissions inventory data, at least 20 sites may have applicable emissions units.

#### **The EPA's reliance on inaccurate data invalidates the proposed requirements.**

As discussed in detail in the above comments, the assumptions the EPA used in its analysis leads to inaccurate emission estimates and associated emission reductions. The EPA should reconsider its reliance on overestimated emission rates that could lead to an inaccurate estimate of impacts to downwind sources. Such an inaccurate estimate could be wrongly determinative of whether a state should be included in the proposed FIP, or what the emissions controls required in the proposal should be.

#### **The EPA's proposal does not fully characterize the California power industry and inappropriately excludes California EGUs from the proposed trading program.**

California EGUs simply must be included in the EPA's proposed trading program. The EPA's own analysis<sup>6</sup> indicates California EGUs contribute more to downwind monitors in other states than Texas EGUs. In the EPA's 2026 modeling, California EGUs contribute 0.02 to 0.22 ppb of ozone to downwind monitors in Arizona, Colorado, and Utah (total contribution across all monitors: 0.79 ppb), whereas Texas EGUs contribute 0.01 to 0.07 ppb ozone in downwind states (total contribution across all monitors: 0.61 ppb). The EPA, however, is proposing to reduce more than 40,000 tons of NO<sub>x</sub> emissions from Texas EGUs from 2022 to 2026 and proposing to exempt 84 California EGUs with a generation capacity of 100 megawatts or greater from regulation, despite the California EGUs having a greater impact on predicted ozone concentrations. The EPA's data indicate that there are 27 units in California without selective catalytic reduction (SCR) or SNCR controls, and eight units that exceeded the EPA's proposed emissions limits for 2021. The EPA furthermore incorrectly stated that California had the "highest share of renewable generation among the 26 states examined at Step 3" (87 FR 20088). However, the Energy Information Administration's 2020 data (released May 2021) showed Texas generated more power in terawatt-hours from renewable sources

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<sup>6</sup> <https://www.regulations.gov/document/EPA-HQ-OAR-2021-0668-0070>

than California. In any case, the EPA must correct its inaccuracies and equitably regulate states' ozone contributions.

**The EPA's analysis does not appropriately consider the difficulties associated with retrofitting SCR controls onto existing EGUs or supply chain issues.**

The EPA inappropriately asserts that SCR can be installed on existing EGUs by May 2026. In Texas, there are an estimated 132 sites with EGUs impacted by the proposed rule. Approximately 55% of potentially impacted EGUs do not currently have SCR or SNCR controls installed and would require retrofitting to comply. The EPA fails to adequately consider the roadblocks and bottlenecks or the retrofit difficulties within such a large-scale deployment when it should.

The EPA provides an analysis on the complexities associated with retrofitting control devices and concludes that a large-scale SCR deployment was feasible based primarily on 20-year-old evaluations. The EPA's 2021 report, *Typical SCR and SNCR Schedule (Coal- or Oil/Gas-Boilers)*, which is included in the docket for the proposed rulemaking, corroborates that typical SCR project implementation could occur within 30-36 months. However, this same document also made several caveats about roadblocks and bottlenecks for large scale deployment including delays in equipment fabrication and delivery due to high demand or custom issues, fewer potential suppliers, more difficult retrofits that may not be conducive to modular construction, and the availability of engineering expertise with the high volume of projects being completed during the same timeframe.

The EPA has not considered these potential concerns nor did the EPA perform a robust analysis of which plants may not be candidates for prefabricated modular construction that allows for a shorter implementation timeframe. The engineering and construction of SCRs for existing EGUs can be extremely complicated, especially where the current installation is not compatible with adding on SCRs.

In relying on its dated evaluation and inadequate technical analysis, the EPA does not appear to be accurately estimating the magnitude of SCR retrofits required by the proposed rule and therefore may be overestimating the ability of air pollution control companies to perform simultaneous large-scale SCR retrofits nationwide given modern inventory and supply chain issues. If the EGUs are not allowed sufficient time to add SCRs and are instead expected to retire, the loss of generation capacity would have a significant impact on electricity consumers in Texas.

**The EPA's proposed backstop emissions limits for EGUs do not account for variability and are inadequate during EGU maintenance, start up, and shutdown (MSS). The EPA's cost analysis for the backstop limit is inadequate and does not address the potential loss of generation capacity nor potential impacts on consumers.**

The first backstop provision in the proposal does not allow for higher emissions during startup and shutdown periods, which can extend for more than 24 hours. Because an SCR typically requires higher operating temperatures to control emissions, the SCR may not be able to meet the EPA's proposed emissions limits during MSS periods. The second backstop provision is an ozone season emissions restriction for any unit contributing to an exceedance of the assurance level (i.e., 121% of the state's emission budget). Because of the operational variability for some units, using the lowest prior seasonal average emission rate is problematic. In Texas, only EGUs have historically been subject to CSAPR and 57 individual EGUs with emissions rates above the EPA's proposed limits have had well over 25% variation in emissions rates between different years. Limiting emissions to 125% of the lowest year's emissions plus 50 tons could greatly reduce the generation capacity of some EGUs, which would adversely impact the future generation capacity. The resulting loss of capacity would have an impact on electricity consumers in Texas. The cost analysis done for the proposal

does not reflect this impact and is therefore inadequate. Accordingly, the EPA should properly account for the complexities surrounding MSS and revise its first and second backstop provisions.

**The EPA's cost analysis does not accurately or appropriately account for the retrofit difficulty, pre-control baseline, and discount rate used to calculate annualized retrofit control costs.**

Retrofit difficulty refers to sites that have very limited space or flexibility to accommodate the installation of SCR controls on existing combustion equipment. This condition may significantly increase the cost to install SCR controls on existing equipment by 300% or more and requires site-specific design information to accurately evaluate. The EPA's SCR retrofit control cost spreadsheet calculations contain a retrofit factor of 1.0, which indicates the calculations assume that SCR controls can be installed at a specific site without incurring additional retrofit difficulty expenditures, i.e., SCR retrofits will only incur normal difficulties and associated costs. This is an unrealistic assumption that does not account for site-specific SCR retrofit difficulties and significantly underestimates cost for facilities with equipment layouts or other site-specific conditions that make SCR retrofits more difficult. The EPA must correct its retrofit factor and reexamine SCR retrofit difficulties and the actual costs in relation to the benefits.

The SCR control cost effectiveness threshold appears to be based on assuming an uncontrolled baseline and applying that cost effectiveness in all cases, regardless of the starting level of control. This approach is unreliable and typically underestimates the true cost effectiveness of a control strategy. The EPA's cost effectiveness approach and assumptions may be valid for states that have implemented little or no control strategies in the past, but it is not a valid approach for states, like Texas, that have implemented substantial NO<sub>x</sub> controls on new and existing combustion equipment through legislation, rulemaking, and permitting. As discussed elsewhere in these comments, the assumed starting NO<sub>x</sub> control level for Texas EGUs and non-EGUs in the EPA's base case does not appear to reflect current conditions when it should.

The discount rates the EPA uses to adjust SCR equipment costs are not precise or consistent. Some of the sample combustion turbine SCR retrofit calculations adjust costs to 2021 dollars using a 2.5% average plant equipment cost increase from 2010 to 2020. Other costs are adjusted using 3% and 7% discount rates to convert 2016 dollars to 2022 dollars and to project costs out to 2042 dollars. The January 2022 through March 2022 quarterly consumer price index, which is a surrogate for the more precise plant equipment price index, is 8.5%. Current expectations are that the plant equipment price index may stay above the EPA's proposed maximum 7% inflationary level for the next several years. The TCEQ requests that the EPA reassess the discount rates it used.

**There is a discrepancy regarding emissions limits for Iron, Steel, and Ferroalloy Manufacturing sources.**

Proposed 40 Code of Federal Regulations (CFR) §52.43(c) states that the emissions limits for these units must be met on a 3-hour rolling average, whereas the preamble (87 FR 20145) states the emissions limits must be met a 30-operating day rolling average period. The EPA should correct this discrepancy before issuing a final action.

**If the EPA fails to withdraw the proposed FIP based on the technical and legal errors discussed in these comments, the TCEQ provides the following information related to specific issues on which the EPA sought comment.**

The EPA sought comment on whether to retire long wet kilns and convert or replace with a more energy efficient kiln type and the time to accomplish. Instead of requiring retirement of

long wet kilns, the EPA should evaluate if a long wet kiln could achieve the proposed emissions limits by installing additional NO<sub>x</sub> controls to operate in conjunction with the SNCR. This approach is more cost-effective than requiring retirement. The EPA failed to examine whether controls are cost-effective for long wet kilns without justification.

The EPA sought comment on whether it is feasible or appropriate to require sources with existing preheater/precalciner kilns that use a variety of NO<sub>x</sub> combustion control devices to add a post combustion such as SNCR or SCR to further reduce NO<sub>x</sub> emissions to no more than 1.95 pounds of NO<sub>x</sub> per ton clinker. The EPA incorrectly assumes that preheater/precalciner kilns are not already equipped with SNCR. In Texas, there are 11 preheater/precalciner kilns (out of 15 kilns total in Texas), and ten of the 11 are already equipped with SNCR control devices. Texas Industries, Inc (TXI), Midlothian Plant, RN100217199 is the only preheater/precalciner kiln in Texas not equipped with SNCR. However, as the EPA noted in its *Non-EGU Sectors Technical Support Document*<sup>7</sup> the TXI preheater/precalciner kiln routinely operates below 1.5 pounds of NO<sub>x</sub> per ton of clinker. The EPA should revise its assessment of potential NO<sub>x</sub> reductions and cost estimates by accurately accounting for existing operating efficiencies and control devices.

The EPA sought comment on whether to replace existing glass manufacturing furnaces with all-electric melter installations. The TCEQ notes that the cost of electricity required to operate larger production units may make this requirement cost prohibitive. The EPA should conduct additional cost analysis on whether this is feasible, especially for furnaces with over 100 tons per day production capacities. The EPA should consider the infrastructure, electric grid accessibility and reliability, and amount of production time lost during the switch to all-electric units in its review of cost-effectiveness for this potential control. Furnaces that are not currently meeting the proposed EPA NO<sub>x</sub> emissions limits may be able to achieve these limits by installing controls on existing furnaces rather than wholesale replacing the furnace. The EPA should evaluate additional controls for cost-effectiveness as well as furnace replacement.

The EPA sought comment on whether glass manufacturing furnaces that already use combustion modifications equivalent to low-NO<sub>x</sub> burners and oxy-firing should be required to add post-combustion controls such as SNCR or SCR to further improve their NO<sub>x</sub> removal efficiency. The EPA should evaluate whether the proposed emissions limits could be achieved without installing post-combustion controls.

The EPA sought comment on whether the applicability threshold for cement kilns and glass manufacturing furnaces should be based on a unit's design production capacity instead of the proposed applicability for kilns (emit or have the potential to emit 100 tpy or more of NO<sub>x</sub>). The TCEQ agrees that cement kiln and glass manufacturing furnace production capacity is a more relevant determination of applicability and would focus the EPA analysis on cost-effective regulations.

The EPA sought comment on proposing emissions limits for other types of fuels should be included in a final FIP, and if so, the types of fuels and the emissions limits that boilers powered by these fuels should be required to meet. If the EPA expands the scope of the regulated fuels, the EPA should clarify whether boilers and industrial furnaces that are regulated as existing facilities by 40 CFR Part 266, Subpart H would be exempt. The EPA should also publish its analysis of such expansion of rule applicability to other types of fuels and associated boilers for public review and comment to ensure full consideration of issues and accurate assessment.

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<sup>7</sup> <https://www.epa.gov/system/files/documents/2022-03/nonegu-sectors-tsd.pdf>