BEFORE THE UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

In re:	)	EPA Docket No.
	)	
Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS	)	EPA–HQ–OAR–2015–0500
	)	
	)	

Western Farmers Electric Cooperative's Petition for Reconsideration of the *Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS*

Western Farmers Electric Cooperative ("Western Farmers") respectfully petitions the U.S. Environmental Protection Agency ("EPA" or "Agency") for reconsideration of the final rule entitled "*Cross-State Air Pollution Rule Update for the 2008 Ozone NAAQS*," Docket No. EPA-HQ-OAR-2015-0500, 81 Fed. Reg. 74,504 (Oct. 26, 2016) ("CSAPR Update Rule" or "Final Rule").[1] Specifically, Western Farmers requests that EPA recalculate (1) unit-level allocations of seasonal nitrous oxide ("NOx") allowances for 2017 and beyond for Western Farmers' Anadarko Plant, using data-substitution called for by the Final Rule; and (2) Oklahoma's NOx seasonal emission budget for 2017 and beyond, using the proposed limited adjustment to EPA's budget calculation methodology to account for arbitrary modeling results.

Western Farmers is a not-for-profit company, and its primary mission is to provide affordable and reliable power to its consumers. Western Farmers is a generation and transmission cooperative that is owned by, and serves, 21 member distribution cooperatives in Oklahoma and New Mexico. Western Farmers also is proud to serve Altus Air Force Base. Western Farmers owns and maintains approximately 3,700 miles of transmission that is operated and administered by the Southwest Power Pool, and its diverse generating mix includes a single 450 megawatt ("MW") coal-fired generation unit at the Hugo plant and 14 natural gas-fired steam cycle, simple cycle, and combined cycle generating units at the Anadarko and Mooreland plants in Oklahoma.[2] Additionally, Western Farmers has been a leader in Oklahoma and the west in developing low- and zero-carbon emitting generation, with almost 600 MW of wind

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[1] Along with an electronic submission of this petition, Western Farmers is supplying EPA with a CD-Rom containing the six Appendices (Appendices A-1 to C-2). The Appendices are Excel datasheets and workbooks demonstrating the calculations and modeling described in this petition. The CD-Rom contains both a "locked" (*i.e.*, password-protected, read-only) version and an "unlocked" courtesy working copy of each file. Appendices B-1 and C-1-2 are modifications of EPA's own tools (Appendix E and AQAT, respectively) and use EPA's own cell formulas. Appendices A-1-2 and B-2 are Western Farmers' original files with cell formulas removed, but with all necessary data and explanation of the methodology underlying the calculations.

[2] As well as the 42 MW Wartsila plant in Lovington, New Mexico.

energy resources currently, and another 30 MW wind facility planned for 2017. Also, Western Farmers added solar to its portfolio mix in 2016 (to come online in early 2017), including 25 MW of solar energy under contract and just over 20 MW of owned solar energy resources.[3]

BACKGROUND

CSAPR addresses the "good neighbor" provision of the Clean Air Act, which prohibits sources within each state "from emitting any air pollutant in an amount which will . . . contribute significantly" to any other state's nonattainment, or interference with maintenance of, any NAAQS. 42 U.S.C. § 7410(a)(2)(D)(i)(I). EPA defines "significant contribution" by reference to (1) a state's "linkage" to downwind receptors (*i.e.*, emissions of approximately 1 percent of compliant ambient levels);[4] and (2) the ability of the state to achieve emission reductions at the relevant cost threshold.[5] CSAPR achieves emissions reductions through annual and ozone season emissions trading programs.

EPA finalized CSAPR in 2011 to address three NAAQS, including the 1997 ozone NAAQS. 76 Fed. Reg. 48,208 (Aug. 8, 2011) ("Original CSAPR Rule" or "CSAPR"). In December 2011, EPA finalized a supplemental CSAPR rule that added several states, including Oklahoma, to the ozone season NOx program. 76 Fed. Reg. 80,760 (Dec. 27, 2011) ("Supplemental CSAPR Rule"). Various groups challenged CSAPR, resulting in a stay of the rule. *See EME Homer City Generation, L.P. v. EPA*, No. 11-1302 (D.C. Cir. Dec. 30, 2011). CSAPR and Supplemental CSAPR Rule requirements and deadlines were effectively tolled pending resolution of the litigation. *See* 79 Fed. Reg. 71,663 (Dec. 3, 2014). In April 2014, the U.S. Supreme Court generally upheld the rule, *see EPA v. EME Homer City Generation LP*, 134 S. Ct. 1584 (2014), and the stay was lifted in October 2014. *See EME Homer City*, No. 11-1302 (Oct. 23, 2014). Phase 1 of the CSAPR ozone season program began in May 2015.

EPA published the Final CSAPR Update Rule in October 2016 to address good neighbor provisions with respect to the 2008 ozone NAAQS. The Agency had published a proposed rule

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[3] WFEC purchases or produces energy from various wind sources, and, in the near future, solar resources. However, WFEC has not historically, nor may not in the future, retain or retire all of the renewable energy certificates associated with the energy production from these facilities.

[4] EPA used an ozone air quality assessment tool ("AQAT") to determine which states contribute to ozone concentrations at maintenance and non-attainment downwind receptors, and to estimate the impact of upwind states' NOx emissions reductions on downwind ozone pollution concentrations. The AQAT was developed specifically for the CSAPR Update Rule. EPA, *Regulatory Impact Analysis of the Cross-State Air Pollution Rule (CSAPR) Update for the 2008 National Ambient Air Quality Standards for Ground-Level Ozone* (Sept. 2016) at 3-10, available at https://www3.epa.gov/ttn/ecas/docs/ria/transport_ria_final-csapr-update_2016-09.pdf ("Regulatory Impact Analysis").

[5] EPA used the Integrated Planning Model v.5.15 ("IPM") to predict how many emissions reductions are available at the relevant cost thresholds. IPM is a dynamic, linear programming model used to project power sector behavior under current and future conditions. IPM's primary objective is to provide estimates of least-cost capacity expansions, electricity dispatch, and emission control strategies while meeting energy demand and environmental, transmission, dispatch, and reliability constraints. *See* https://www.icf.com/solutions-and-apps/ipm.

about 10 months earlier. *See* 80 Fed. Reg. 75,706 (Dec. 3, 2015) ("Proposed CSAPR Update Rule" or "Proposed Rule"). In the Final Rule, EPA found that 22 eastern states, including Oklahoma, had failed to submit a state implementation plan to meet their good neighbor obligations. For these 22 states, EPA issued federal implementation plans that generally update existing CSAPR NOx ozone season emission budgets, and that implement these budgets through modifications to the existing CSAPR NOx ozone season allowance trading program. The Final Rule addresses only emission reductions from electric generating units ("EGUs"). Implementation will start in the 2017 ozone season (May - September 2017).

EPA made several significant changes between the Proposed and Final CSAPR Update Rules. Most notably for Western Farmers and other Oklahoma generators:

(1) **In calculating allocations for Oklahoma units in the Final Rule, EPA did not use data-substitution**. Both the Proposed and Final Rules call for EPA to use up to *five* years of historic heat input data and up to *eight* years of historic NOx emissions data. To accomplish this, both rules also call for EPA to use a data-substitution method (so that if data is not available from EPA's preferred data source for a given year, EPA can pull equivalent data from an alternative source).[6] EPA followed this method in the Proposed Rule.[7] But in the Final Rule, EPA switched to using a *single year of historic baseline data without any data-substitution* for the Anadarko Plant and other Oklahoma units. EPA's error in the Final Rule led to a drastic (over 80 percent) reduction in the Anadarko Plant units' allocations from the Proposed Rule to the Final Rule.[8]

(2) **In calculating Oklahoma's budget in the Final Rule, EPA used a revised formula with new inputs**. Specifically, EPA introduced new variables, including (1) a NOx emission rate "delta" (equal to the difference between an IPM 2017 Final Base Case and IPM 2017 Final $1,400/ton Cost Case emission rate); and (2) an "adjusted" historic emission rate, based on a newly-developed dataset.[9] For seven states, including Oklahoma, the IPM 2017 Base Case

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[6] The two data sources EPA says it will look to are: (1) EPA's Clean Air Markets Division ("CAMD"), for years for which it is available; and (2) U.S. Energy Information Administration ("EIA"), for years for which CAMD data is unavailable.

[7] With some caveats: EPA did not include 2014 EIA data because it was unavailable at the time the Proposed Rule was published. Thus, for units without 2014 CAMD data, EPA did not "backfill" or substitute any EIA data. Additionally, EPA did not include data for years for which a unit was not yet operating (*e.g.*, if a unit that began operating in 2012, EPA used available 2012-2014 heat input and NOx emissions data). *See* EPA, Proposed Rule, *Unit Level Allocations and Underlying Data for the CSAPR for the 2008 Ozone NAAQS* ("Proposed Allocation Spreadsheet TSD"). Excel file available at https://www.epa.gov/airmarkets/proposed-cross-state-air-pollution-update-rule. Further, as discussed below, it appears that EPA inappropriately relied on annual, not monthly, EIA data and made arbitrary downward adjustments to reported EIA data for cogeneration and combined cycle units. EPA should use monthly, reported (*i.e.*, unadjusted) EIA data in the revised Final Rule allocations.

[8] *See* Part I below.

[9] Both the Proposed and Final Rules call for EPA to set state budgets as the minimum of either (1) historic emissions or (2) IPM-predicted 2017 emissions. EPA's changes pertain to the formula for calculating IPM-predicted 2017

emission rate is significantly higher than the state's historic actual or adjusted 2015 emission rates—an unrealistic and arbitrary outcome (the **"*Perverse IPM Result*"**). The Perverse IPM Result creates an arbitrarily high "delta" value, causing EPA to overestimate the amount of available emission reductions in the state. Carried through the rest of the formula, this error results in an unrealistically low state budget. Oklahoma's budget is approximately 28 percent lower in the Final Rule than it was in the Proposed Rule—*the most drastic reduction for any state*.[10]

REQUEST FOR RECONSIDERATION

The Clean Air Act requires that EPA grant reconsideration of a regulation if a petitioner "can demonstrate to the Administrator that it was impracticable to raise [an] objection [during the period for public comment] or if the grounds for such objection arose after the period for public comment . . . and if such objection is of central relevance to the outcome of the rule." 42 U.S.C. § 7607(d)(7)(B). In such a situation, reconsideration is mandatory: EPA "*shall* 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." *Id.* (emphasis added).

The notice-and-comment requirements of the Clean Air Act and the Administrative Procedure Act further require that EPA's "proposed rule and its final rule . . . differ only insofar as the latter is a 'logical outgrowth' of the former." *Envtl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005). A "final rule is a 'logical outgrowth' of a proposed rule *only* if interested parties should have anticipated that the change was possible, and thus reasonably should have filed their comments on the subject during the notice-and-comment period." *Id.* at 998.

EPA must grant reconsideration of the CSAPR Update Rule because:

(1) **In calculating allocations for Oklahoma units**, EPA made a clear technical error by failing to use EIA data-substitution for the Anadarko Plant and other units. As described further below, the grounds for this objection arose after the public comment period. EPA did not make a similar error in the Proposed Rule, nor did EPA give notice of, or seek comment on, the option of *not* using data-substitution—so that some units would receive allocations based on a *single* baseline year—in the Final Rule. This objection is of central relevance to the outcome of the Final Rule. EPA's error threatens Western Farmers' ability to comply with the Final Rule, especially given the extremely short compliance timeframe for the 2017 ozone season. It has also created an unfair and unrepresentative distribution of allowances within Oklahoma, making it harder for the state to comply efficiently with the rule. Compliance feasibility and efficiency are central to the outcome of the CSAPR Update Rule.

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emissions. EPA used a historic emissions baseline period of 2014 in the Proposed Rule and 2015 in the Final Rule. *See* Part II below.

[10] The primary driver of this drop in Oklahoma's budget appears to be the new IPM-predicted 2017 emissions formula, not the switch from a 2014 to 2015 historic baseline year. *See* Part II below.

(2) **In calculating Oklahoma's budget**, EPA used a new formula with inaccurate and perverse data inputs that overestimated the available emissions reductions in the state. As described further below, the grounds for this objection arose after the public comment period. EPA's broad request in the Proposed Rule for comment on "all aspects" of quantifying state budgets did not give Western Farmers reasonable notice of the highly complex changes EPA would adopt in the Final Rule—changes that would negatively impact Oklahoma more than any other state. This objection is of central relevance to the outcome of the Final Rule. Oklahoma's current Final Rule budget is unrealistically and arbitrarily low. This threatens the ability of *all* covered Oklahoma units to comply with the rule.

I. UNIT-LEVEL ALLOWANCE ALLOCATIONS

A. EPA Should Follow its Own Methodology and Use EIA Data-Substitution

EPA's unit-level allowance allocation calculations in the Final Rule are arbitrary and capricious as applied to Western Farmers' Anadarko Plant units. EPA's failure to perform EIA data-substitution—and use of a single historic baseline year for some units—goes against the Final Rule's own prescribed methodology. It also puts units on unequal footing: some units received allocations based on one year of operation, while other units received allocations based on multiple years of operation. This effectively penalizes units, like the Anadarko Plant units, that had no obligation to report data to CAMD in prior years.

EPA must recalculate Western Farmers' allocations for the Anadarko Plant units to avoid this unfair and arbitrary outcome. Specifically, EPA must use (1) five years of reported heat input data (2011-2015) and eight years of reported NOx emissions data (2008-2015); and (2) EIA data-substitution, where CAMD data is unavailable. Therefore, the allocations should be based on 2011-2014 EIA and 2015 CAMD heat input data and 2008-2014 EIA and 2015 CAMD NOx emissions data. EPA should use monthly (not annual), reported (not adjusted) data. *See* Appendix A-1 for detailed proposed calculations.[11]

1. What EPA Said it Would Do

Western Farmers' request to EPA is straightforward: simply do what you said you would do (but did not actually do). The Final Rule calls for using a five-year (2011-2015) historic baseline period for heat input data, and an eight-year (2008-2015) historic baseline period for NOx emissions data. *See* Allocation TSD at 6-7.[12]

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[11] Where reported unit-level heat input EIA data is unavailable, EPA should make the best estimate based on reported plant-level EIA heat input data and reported unit-level heat input data (*e.g.*, from CAMD). Appendix A-2 includes a detailed proposed estimation technique.

[12] EPA's allocation methodology has two main phases: (1) **Heat Input Data Phase:** EPA "uses the average of the three highest years of heat input data out of a consecutive five-year period [2011-2015] to establish the heat input baseline for each unit." 81 Fed. Reg. at 74,564. EPA then calculates initial heat input-based allowance allocations based on each unit's percentage share of the state's total ozone season heat input; and (2) **NOx Emissions Data Phase:** EPA then "constrains the unit-level allocations so as not to exceed the maximum historical baseline emissions, calculated as the highest year of emissions out of a consecutive eight-year period [2008-2015]." *Id.*

EPA's rationale for using multiple historic baseline years is sound: it helps ensure that outlier data from a single unrepresentative year (*e.g.*, where heat input or NOx emissions levels were significantly lower than usual) does not skew the calculations.[13] As EPA recognizes, the power sector is susceptible to a range of variables affecting fuel use and emissions, including equipment failures, changing market forces, and weather patterns. *See* 81 Fed. Reg. at 74,566. One year of historic data cannot capture the inherent variability in a unit's operations from year to year, or ozone season to ozone season.

EPA says it will to look to two possible sources to obtain this historic data:

(1) First, EPA's CAMD database, which contains data from units already reporting under CSAPR or other trading programs, such as the Clean Air Interstate Rule or the Acid Rain Program; and

(2) Second, EIA forms, "where EPA data are unavailable." *Id.* at 6-7.

Under this approach, the only baseline years for which a unit should have a "missing" value are baseline years "for which a unit has ***no*** data on heat input (*e.g.*, for a baseline year before the year when a unit started operating)." *Id.* at 7 (emphasis added). In other words, if CAMD data is available for a unit for a particular year within the relevant historic baseline period, EPA should use that CAMD data. If CAMD data is unavailable but EIA is available, EPA should use the EIA data.[14] *If and only if neither* CAMD *nor* EIA data is available (*e.g.*, because the unit was not yet operating), EPA should use no data—*i.e.*, "zero" values.

Indeed, for many units EPA *must* look to a historic data source other than CAMD to populate the multi-year baseline periods called for in the Final Rule. Prior to Phase I of the CSAPR program in 2015, many units, including the Anadarko Plant units, had no obligation to report data to CAMD under any EPA program. The Anadarko Plant units have only a single year of reported CAMD data (2015), but multiple years of EIA data (back to before 2008, the earliest relevant baseline year under the Final Rule). Under such circumstances, EPA's methodology calls for the Agency to use a combination of 2015 CAMD data and 2008-2014 EIA data to establish unit allocations.

Overall, this methodology "bases a unit's allocation on the unit's historical heat input but limits any unit's allocation to its historical maximum emissions." EPA, *Allowance Allocation Final Rule TSD* at 6 (Aug. 2016) ("Allocation TSD"). Available at https://www3.epa.gov/airmarkets/CSAPRU/CSAPR%20Allowance%20Allocations%20Final%20Rule%20TSD.PDF.

[13] *See* Allocation TSD at 7. EPA chose a multi-year heat input baseline because "[s]electing the three highest, non-zero ozone season heat input values within the five-year baseline reduces the likelihood that any particular single year's operations (which might be negatively affected by outages or other unusual events) determine a unit's allocation." *Id.* EPA chose a multi-year NOx emissions baseline "in order to capture the unit-level emissions before and after the promulgation of the original CSAPR." *Id.*

[14] For certain years and facilities, EIA heat input data is reported only on a plant-level, not unit-level, basis. As noted above, EPA should make its best estimate of unit-level heat input data. *See* Appendices A-1 and A-2.

EPA also states it will look to publicly available, *reported* EIA data.[15] EPA does not state, in either the Final Rule or the Allocation TSD, that the Agency will adjust EIA data from what is reported directly on the EIA forms.[16] EPA therefore should use *monthly (not annual)*, *reported (not downward-adjusted for combined cycle and cogeneration units)* EIA data whenever EIA data is called for in allocation calculations. Monthly data is better than annual data with a crude 5/12 multiplier because monthly data more accurately reflects actual ozone season operations.[17] Reported heat input data is better than downward-adjusted heat input data for cogeneration and combined cycle units because reported data more accurately reflects these units' actual fuel use, as well as their highly efficient processes.[18] Using monthly, reported EIA data also is consistent with EPA's treatment of CAMD data, which EPA did not adjust when incorporating it into the Final Rule's current allocation calculations. Treating EIA and CAMD data differently would be arbitrary and capricious.

2. What EPA Actually Did

In the Final Rule, EPA inexplicably relied on *only* CAMD data, without backfilling EIA data, in its Oklahoma unit allocations. *See* EPA, Final Rule, *Unit-Level Allocations and Underlying Data for the CSAPR Update for the 2008 Ozone NAAQS* ("Final Allocation Spreadsheet TSD").[19] Several units, including the Anadarko Plant units, had only a single year (2015) of reported CAMD data, because these units were not required to report data to CAMD

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[15] Specifically, EPA "used historical heat input and emissions data [EIA] forms, 860, 906, 920, and 923. These data are publicly available at http://www.eia.doe.gov/cneaf/electricity/page/data.html." Allocation TSD at 6.

[16] In the Proposed Rule, EPA appears to have altered Western Farmers' reported EIA data in two ways: (1) instead of looking at *monthly* data for ozone season months, EPA took *annual* data and multiplied it by 5/12 to estimate ozone season operations (because the ozone season comprises 5 months out of the year); and (2) instead of using total reported heat input values, EPA applied a downward "proportional nameplate capacity adjustment" to cogeneration and combined cycle units, which have both a gas turbine and a steam turbine that produce electricity (basically, EPA multiplied the gas turbine's share of the plant's total nameplate capacity by the plant's total heat input). Both of these data manipulations are inappropriate. EPA historically has used reported, monthly EIA data—as it should again here.

[17] The 5/12 ozone season multiplier incorrectly assumes that units operate more or less the same during all 12 months of the year. In fact, the Anadarko Plant units operate *significantly more* during the ozone season because they are highly-efficient natural gas-fired units that are called on during peak periods of electricity demand, which often coincide with ozone season summer months. Further, monthly EIA data for May-September for 2008-2014 is available for these units; there is no reason not to use it.

[18] The "proportional nameplate capacity adjustment" for cogeneration and combined cycle units misunderstands how these units operate and punishes these units for being efficient. *All* fuel consumed in combined cycle units is used in electricity generation: fuel is combusted in the gas turbine to either produce power or produce steam, which then produces power (in the steam turbine). Therefore, the adjustment punishes units for employing a more efficient process that reuses gas turbine exhaust to produce steam and more electricity, rather than just venting it off.

[19] Excel file available at https://www.epa.gov/airmarkets/final-cross-state-air-pollution-rule-update.

under any EPA program prior to 2015.[20] However, the Anadarko Plant and other Oklahoma units *do* have multiple prior years of available EIA data. EPA could easily backfill this EIA data into its allocation calculation spreadsheet. EPA does not explain why the Agency did not perform this data-substitution in the Final Rule's allocation calculations.

B. Corrected Calculations Show the Anadarko Plant Units Should Receive ***Over 120*** Additional Allowances

EPA's approach arbitrarily reduced the allowances allocated to the Anadarko Plant units. As shown in the figures and tables below, the Final Rule's allocations for the Anadarko Plant units are *more than 75 percent below what they should be* under EPA's allocation method that incorporates EIA data-substitution,[21] and *over 80 percent below what they were under the Proposed Rule*.[22] To correct the allocations for the Anadarko Plant units, Western Farmers used monthly, unadjusted EIA heat input data from EIA forms 923, 860, 906, and 920.[23] *See* Appendix A-2.[24] Western Farmers also pulled publicly available, reported EIA heat input data and performed data-substitution for *all* Oklahoma units. However, Figures 1-4 below show the results for only the Anadarko Plant units.

Figure 1 shows the historic heat input data EPA relied on in performing the initial heat input-based allocation calculations (Steps 1-6) for the Anadarko Plant units in the current Final Rule, while **Figure 2** shows the historic heat input data EPA should have relied on:

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[20] Western Farmers' analysis indicates that other Oklahoma units with only a single year of CAMD data include AES Shady Point, Mustang, Oklahoma Cogeneration LLC, and Weleetka units.

[21] Under the Final Rule, the Anadarko Plant units have allocations of 9 tons, 14 tons, and 17 tons, respectively (40 tons combined). Using the corrected method, the Anadarko Plant units would receive allocations of 52 tons, 53 tons, and 56 tons, respectively (161 tons combined). *See* Figures 1-4 and Table 1 below.

[22] Under the Proposed Rule, the Anadarko Plant units would have had allocations of 77 tons each (231 tons combined).

[23] For facilities reporting EIA heat input data at a plant-level, not unit-level, an estimation technique was used to arrive at unit-level heat input data. First, the total reported plant-level heat input (EIA) was reduced by the total reported unit-level heat input for all units for which reported data was available (from EIA or CAMD). Then, the remaining heat input was distributed evenly among the unreported units. *See* Appendix A-2.

[24] For the NOx emission data shown in Figure 4, Western Farmers relied on the NOx emissions values used in the Proposed Rule, due to the company's limited resources and the time it would take to calculate updated NOx emissions values based on monthly, unadjusted EIA data (instead of the annual, adjusted EIA data used in the Proposed Rule). Because *only the maximum* historic NOx emissions affect the unit allocations, re-calculating the NOx emissions values is not expected to impact the final allocations.

Figure 1. Historic Heat Input Data (Current Final Rule Allocations).

				Step 1					Steps 2 & 3	Step 4	Step 5	Step 6	
Plant Name	ORIS ID	Boiler ID	CAMD Unit ID	2011 Ozone Season Heat Input (mmBtu)	2012 Ozone Season Heat Input (mmBtu)	2013 Ozone Season Heat Input (mmBtu)	2014 Ozone Season Heat Input (mmBtu)	2015 Ozone Season Heat Input (mmBtu)	Unit Level Average of 3 Highest Non-Zero Ozone Season Heat Inputs from 2011 to 2015 (mmBtu)	State Level Summation of Unit Level Three Year Average Ozone Season Heat Input (mmBtu)	Unit 's Percentage Share of State's Ozone Season Heat Input	Ozone Season NO_X 2017 State Budget for Existing Units (tons)	Initial Heat Input Based 2017 Ozone Season NO_X Allocation (tons)
Calculation									Average of three highest non-zero values in columns F - J	Sum column K values to get State level totals	Column K divided by column L		Column M x column N
Anadarko Plant	3006	4	90966					736,757	736,757	339,851,789	0.002168	11,408	25
Anadarko Plant	3006	5	90967					1,118,066	1,118,066	339,851,789	0.003290	11,408	38
Anadarko Plant	3006	6	90968					1,335,829	1,335,829	339,851,789	0.003931	11,408	45

Figure 2. Historic Heat Input Data (Corrected Final Rule Allocations).

				Step 1					Steps 2 & 3	Step 4	Step 5	Step 6	
Plant Name	ORIS ID	Boiler ID	CAMD Unit ID	2011 Ozone Season Heat Input (mmBtu)	2012 Ozone Season Heat Input (mmBtu)	2013 Ozone Season Heat Input (mmBtu)	2014 Ozone Season Heat Input (mmBtu)	2015 Ozone Season Heat Input (mmBtu)	Unit Level Average of 3 Highest Non-Zero Ozone Season Heat Inputs from 2011 to 2015 (mmBtu)	State Level Summation of Unit Level Three Year Average Ozone Season Heat Input (mmBtu)	Unit 's Percentage Share of State's Ozone Season Heat Input	Ozone Season NO_X 2017 State Budget for Existing Units (tons)	Initial Heat Input Based 2017 Ozone Season NO_X Allocation (tons)
Calculation									Average of three highest non-zero values in columns F - J	Sum column K values to get State level totals	Column K divided by column L		Column M x column N
Anadarko Plant	3006	4	90966	1,310,612	1,426,485	1,031,944	725,860	736,757	1,256,347	341,127,969	0.003683	11,408	42
Anadarko Plant	3006	5	90967	1,310,612	1,426,485	1,031,944	605,014	1,118,066	1,285,054	341,127,969	0.003767	11,408	43
Anadarko Plant	3006	6	90968	1,310,612	1,426,485	1,031,944	911,748	1,335,829	1,357,642	341,127,969	0.003980	11,408	45

In the current Final Rule, heat input data for 2011-2014 is effectively treated as "zero." This is historically inaccurate and distorts the calculations. Under this method, the Step 6 initial heat input-based allowance allocations for the Anadarko Plant units are 25 tons, 38 tons, and 45 tons, respectively. Under the corrected method where available EIA heat input data from the years 2011-2014 is backfilled, the Step 6 initial heat input-based allowance allocations are 42 tons, 43 tons, and 45 tons, respectively.

Figure 3 shows the historic NOx emissions data EPA relied on in performing the final allowance allocation calculations (Steps 7-10) for the Anadarko Plant units in the current Final Rule, while **Figure 4** shows the historic NOx emissions data EPA *should have* relied on:

Figure 3. Historic NOx Emissions Data (Current Final Rule).

				Step 7								Step 8	Steps 9 & 10
Plant Name	ORIS ID	Boiler ID	CAMD Unit ID	2008 Ozone Season NO_X Emissions (tons)	2009 Ozone Season NO_X Emissions (tons)	2010 Ozone Season NO_X Emissions (tons)	2011 Ozone Season NO_X Emissions (tons)	2012 Ozone Season NO_X Emissions (tons)	2013 Ozone Season NO_X Emissions (tons)	2014 Ozone Season NO_X Emissions (tons)	2015 Ozone Season NO_X Emissions (tons)	Ozone Season NO_X Maximum Historic Baseline (tons)	Final Transport Rule Unit Level NO_X Ozone Season Allocation 2017 (tons)
Calculation												Highest value of columns P - W	(Lesser of columns X and O + reapportionment if O < X
Anadarko Plant	3006	4	90966								9	9	9
Anadarko Plant	3006	5	90967								14	14	14
Anadarko Plant	3006	6	90968								17	17	17

Figure 4. Historic NOx Emissions Data (Corrected Final Rule).

				Step 7								Step 8	Steps 9 & 10
Plant Name	ORIS ID	Boiler ID	CAMD Unit ID	2008 Ozone Season NO_X Emissions (tons)	2009 Ozone Season NO_X Emissions (tons)	2010 Ozone Season NO_X Emissions (tons)	2011 Ozone Season NO_X Emissions (tons)	2012 Ozone Season NO_X Emissions (tons)	2013 Ozone Season NO_X Emissions (tons)	2014 Ozone Season NO_X Emissions (tons)	2015 Ozone Season NO_X Emissions (tons)	Ozone Season NO_X Maximum Historic Baseline (tons)	Final Transport Rule Unit Level NO_X Ozone Season Allocation 2017 (tons)
Calculation												Highest value of columns P - W	(Lesser of columns X and O + reapportionment if O < X
Anadarko Plant	3006	4	90966	112	102	119	83	99	30		9	110	52
Anadarko Plant	3006	5	90967	112	102	119	83	99	30		14	110	53
Anadarko Plant	3006	6	90968	112	102	119	83	99	30		17	110	56

In the current Final Rule, EPA's approach—*which effectively assumes the units had "zero" emissions for 2008-2014*—sets Step 8 maximum emissions "upper bound" limits of 9 tons, 14 tons, and 17 tons, respectively. These values serve as "caps" on final allocations, and effectively override and replace the initial Step 6 allocations from Figure 1. Thus, final allocations under Steps 9 & 10 are 9 tons, 14 tons, and 17 tons, respectively.

Under the corrected method where available EIA NOx emissions data for 2008-2014 is backfilled,[25] the Step 8 maximum emissions "upper bound" limits are significantly higher, at 119 tons for all three Anadarko Plant units. This is a much more generous cap, allowing for final allocations under Steps 9 & 10 that are based on taking the initial Step 6 allocations from Figure 2 and adding a reapportionment adjustment. This amounts to final allocations of 52 tons, 53 tons, and 56 tons, respectively (161 combined)—or an additional 43 tons, 39 tons, and 39 tons, respectively (an additional 121 tons combined). Table 1 summarizes the impact of the corrected calculations on the Anadarko Plant units:

Table 1. Impact of Performing EIA Data-Substitution on Anadarko Plant Unit Allocations.

Plant Name	ORIS ID	Boiler ID Proposed/Final	Ozone Season NO_X Maximum Historic Baseline (tons)		Final Transport Rule Unit Level NO_X Ozone Season Allocation 2017 (tons)			Change (Final CSAPR to Scaling Fix) (tons)
			Proposed CSAPR	Final CSAPR	Proposed CSAPR	Final CSAPR	Allocation w/ EIA Data	
Anadarko Plant	3006	4	145	9	77	9	52	43
Anadarko Plant	3006	5	145	14	77	14	53	39
Anadarko Plant	3006	6	145	17	77	17	56	39

In sum, under the corrected method, the Anadarko Plant units should receive a combined total of approximately 161 additional allowances (39-43 additional allowances each). *See* Appendix A-1 for a complete version of Table 1 showing the impact of EIA data-substitution on all Oklahoma unit allocations.

[25] NOx emissions data for 2014 was not readily available to Western Farmers. Excluding the 2014 data is not expected to impact these calculations because 2014 emissions for the Anadarko Plant units are likely to be lower than 2008-2013 emissions.

C. Western Farmers Could Not Have Reasonably Anticipated EPA's Error

The grounds for Western Farmer's objection arose after the public comment period. Before the Final Rule was issued, Western Farmers could not have expected or anticipated that EPA would set the Anadarko Plant unit allocations based on a *single* historic baseline year and *only CAMD* data. Both the Proposed and Final Rules call for EPA to set unit allocations using multiple historic baseline years[26] and EIA data-substitution. EPA did this in the Proposed Rule, but not in the Final Rule. What EPA did in the Final Rule looks like a clear technical error. It would be impracticable, if not impossible, for Western Farmers to have anticipated and submitted comment on an error that EPA *had not yet committed* during the public comment period, but committed for the first time in the Final Rule.

Western Farmers therefore had no meaningful opportunity to comment on the final allocations. EPA did not provide notice of or seek comment on the possibility of switching from *multiple* to *single* historic baseline years, or from using *both CAMD and EIA data* to *only CAMD* data. Had EPA done so, Western Farmers would have submitted comments that these changes would arbitrarily and unfairly penalize the Anadarko Plant units. As it stands, Western Farmers was caught by surprise by the new unit-level allocation data inputs. EPA may not "use the rulemaking process to pull a surprise switcheroo on regulated entities." *Envtl. Integrity Project*, 425 F.3d at 998.

EPA's data errors have left Western Farmers with a major and unexpected allowance shortfall for the 2017 ozone season. Correcting these errors is critical to Western Farmers' ability to plan for and achieve compliance with the CSAPR Update Rule, especially given the extremely near-term compliance timeframe for the 2017 ozone season.

D. EPA Should Correct These Technical Errors Through a Direct Final Rule

EPA should issue these technical corrections through a direct final rule as an alternative to full notice-and-comment rulemaking.[27] Direct final rules rely on the Administrative

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[26] The only difference between the Proposed and Final Rule was a one-year shift in the relevant baseline periods. Because 2015 data was not yet available, the Proposed Rule calculated allowance allocations based on a 2010-2014 heat input baseline period, and a 2007-2014 NOx emissions baseline period. The Final Rule uses a 2011-2015 heat input baseline period and a 2008-2015 NOx emissions baseline period. *See* Allocation TSD at 6.

[27] A direct final rule is "a rule that is issued in final form, without prior notice and comment, that becomes effective on a particular date unless adverse comment is submitted within a specified period of time." EPA Office of General Counsel, *Direct Final Rulemaking Guidance for EPA Rule Writers*, Attachment 1, § 2 (1998). Available at https://yosemite.epa.gov/oaqps/rdms.nsf/591caf4ab155e210852566de00539f57/c92ad1453ad5de6885256728006a0f30!OpenDocument ("Direct Final Rulemaking Guidance"). In conjunction with a direct final rule, EPA's typical practice is to simultaneously publish a separate, parallel proposed rule. If EPA receives significant adverse comments on the direct final rule, the Agency will withdraw the direct final rule and address the public comments in a subsequent final rule based on the parallel proposed rule. *Id.* at § 4. Western Farmers encourages EPA to act on this parallel tract to ensure the most efficient and timely resolution of EPA's data errors.

Procedure Act's "good cause" exemption from notice-and-comment rulemaking,[28] while giving the Agency "the benefit of any public input that may unexpectedly surface." Direct Final Rulemaking Guidance at § 2 (citation omitted). EPA uses direct final rules for "noncontroversial rules where [the Agency does not] expect adverse comment," including routine or minor actions. *Id.* at §§ 4, 6. EPA previously has issued direct final rules under the CSAPR program. *See, e.g.*, *Revisions to Federal Implementation Plans To Reduce Interstate Transport of Fine Particulate Matter and Ozone*, 77 Fed. Reg. 10,342 (Feb. 21, 2012). Here, the corrections to EPA's allocation calculations are a non-controversial, minor action unlikely to attract adverse comment because they (1) would affect only a subset of units within a single state; and (2) are necessary to correct clear technical errors in EPA's application of the Final Rule's allocation methodology.

Further, time is of the essence. A direct final rule generally is a more efficient procedural mechanism than notice-and-comment rulemaking. The 2017 ozone season begins in just over five months. Western Farmers needs to get the correct amount of allowances on the books for their units as soon as possible in order to plan, and carry out, its compliance strategy for the 2017 ozone season.

II. OKLAHOMA STATE BUDGET

A. EPA's New Budget Calculation Method Arbitrarily Slashed Oklahoma's Budget

Oklahoma's budget decreased more than that of any other state between the Proposed and Final Rules, dropping by more than 25 percent, from 16,215 tons to 11,641 tons. Oklahoma's Final Rule budget is also about 49 percent lower than its 2016 ozone season budget, decreasing from 22,694 tons to 11,641 tons.[29] In contrast, most (15 out of 22 Group 2) CSAPR Update states saw their budgets *increase* in the Final Rule. Only six other states saw their budgets decrease, but none as significantly as Oklahoma.

The drastic reduction in Oklahoma's budget was driven by significant revisions EPA made to its budget calculation formula. Most critically, EPA introduced a NOx emission rate "delta" value that is derived from IPM. For certain states, including Oklahoma, the IPM-predicted emission rates are blatantly arbitrary. When plugged into EPA's new formula, they significantly *over-predict* available emissions reductions and significantly *under-predict* emissions levels. This results in an unrealistically low state budget. Western Farmers proposes a limited technical fix to EPA's formula that would help avoid this outcome while preserving EPA's Final Rule methodology.

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[28] 5 U.S.C. § 553(b)(3)(B) (Section 553's notice-and-comment requirement does not apply "when the agency for good cause finds . . . that notice and public procedure thereon are impracticable, unnecessary, or contrary to the public interest.").

[29] Under the Proposed Rule, this decrease was approximately 29 percent, a less drastic change.

1. EPA's Changes to the State Budget Formula

EPA changed its state budget calculation formula significantly between the Proposed and Final Rules. Specifically, EPA introduced additional variables, including (i) an IPM-derived NOx emission rate "delta;" and (ii) an adjusted historic emission rate based on a newly-developed dataset.

In both the Proposed and Final Rule, EPA set state budgets as the minimum of either:

> (1) Historic actual emissions (2014 for the Proposed Rule; 2015 for the Final Rule); or
>
> (2) IPM-predicted 2017 emissions.

See 81 Fed. Reg. 74,548. What changed—significantly—between the Proposed and Final Rules is EPA's process for calculating IPM-predicted 2017 emissions.

For the Proposed Rule, EPA's method can be represented by the following formula:

> *IPM-predicted 2017 Emissions (tons) = (Historic Heat Input, 2014) x (IPM Emission Rate, 2017 $1,300/ton Cost Case)*[30]

For the Final Rule, EPA's new method requires a much more complex formula:

> *IPM-predicted 2017 Emissions (tons) = (Historic Heat Input, 2015) x [(Adjusted 2015 Emission Rate) - [(IPM Emission Rate, 2017 Base Case) - (IPM Emission Rate, 2017 $1,400/ton Cost Case)]]*[31]

According to EPA, both formulas reflect a basic method of "multiplying historical state-level heat input [*i.e.,* first parentheses on right-hand side of the equations] by state-level emission rates that reflect EGU NOX reduction potential [*i.e.*, second parentheses on right-hand side of the equations, highlighted in yellow]." *Id.* at 74,547. In the Proposed Rule, the "NOx reduction potential" emission rate was represented simply by an IPM Cost Case emission rate. In the Final Rule, the "NOx reduction potential" emission rate is represented by a more complex calculation

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[30] *See id.* at 74,547 ("[T]he proposed CSAPR Update put forward a methodology to set emission budgets by multiplying monitored historical state-level heat input by model-projected 2017 state-level emission rates. The monitored historical data were based on 2014, which was the most recent complete ozone season dataset at the time of the proposal.").

[31] *See id.* ("For the final CSAPR Update rule, the EPA is refining its methodology for establishing emission budgets that reflect EGU NOX reduction potential by using historical state-level NOX emission rates adjusted by modeled NOX reduction potential. Specifically, the final rule's approach applies the change in modeled 2017 state-level emission rates (the budget-setting base case 2017 projected rates minus the cost threshold modeling 2017 projected rates) to historical 2015 state-level NOX emission rates.")

involving three variables: an adjusted historic emission rate, an IPM Base Case emission rate, and an IPM Cost Case emission rate. The only other step in the formulas is to multiply the "NOx reduction potential" emission rate by historic heat input to derive IPM-predicted 2017 emissions.

This updated formula reflects a new, multi-step process for calculating the NOx reduction potential emission rate that entails (1) first, calculating a NOx emission rate "delta," based on the difference between an IPM Base Case emission rate and an IPM $1,400/ton Cost Case emission rate; and (2) second, applying this "delta" to an adjusted historic emission rate. *See id.* at 74,548. This latter step requires assuming that "the potential of each state to improve its historical NOX rate by the same degree that it is projected to improve its NOX rate when moving between the budget-setting base case 2014 projection and cost threshold projection." *Id.* at 74,547. Finally, this "NOx reduction potential" emission rate is multiplied by historic heat input. The result is the final IPM-predicted 2017 emissions. As under the Proposed Rule, if this result is lower than historic actual emissions, then EPA bases the final state budget on the IPM-predicted 2017 emissions. If this result is higher than historic actual emissions, then EPA bases the final state budget on actual historic emissions.

Notably, EPA introduced several entirely new variables in the final state budget formula. EPA introduced an IPM Base Case emission rate value into the new formula, while the Proposed Rule included only an IPM $1,300/ton Cost Case emission rate. The new formula also required the Agency to develop an "adjusted historic dataset" in order to derive the adjusted 2015 emission rate values. *See id.* This adjusted dataset started with actual historic 2015 heat input and NOx emissions data. EPA then adjusted the actual historic data for three categories of "known changes in the power sector occurring between 2015 and 2017": (1) announced new selective catalytic reduction ("SCR") at existing EGUs; (2) announced coal-to-gas conversions; and (3) announced retirements. *Id.* According to the Agency, these adjustments "ensure that the emission budgets established by this rule reflect EGU NOX reductions both from already announced power sector changes and further EGU NOX reductions quantified in the EPA's EGU NOX reduction potential analysis." *Id.*[32]

2. Perverse IPM Result

EPA's new Final Rule budget-setting methodology yields the following results for Oklahoma:

[32] EPA may have relied on inaccurate and over-simplified assumptions in calculating adjusted historic 2015 emission rates. For example, EPA's assumption that retirements necessarily will lead to a reduction in the state's average emission rate may not adequately account for the effects of intrastate or interstate load-shifting.

Table 2. Comparison of 2015 Actual, 2015 IPM-Predicted, and 2017 IPM Base Case and Cost Case Results for Oklahoma Under the Final Rule.

	2015 Actual	2015 Actual, Adjusted	2017 IPM Base Case	2017 IPM (Final $1,400/ton)	CSAPR Budget (Final Rule)
Heat Input (MMBtu)	256,168,790	243,267,181	208,776,019	207,804,804	256,168,790
NOx (tons)	13,922	13,055	16,506	14,720	11,641
Emission Rate (lb/MMBtu)	0.109	0.107	0.158	0.142	0.091

The Perverse IPM Result is highlighted.

Importantly, IPM predicts that the 2017 Base Case emission rate for Oklahoma would be substantially *higher* than the historic actual or adjusted 2015 emission rate. In other words, IPM predicts that in a world without the CSAPR Update Rule, Oklahoma's NOx emission rate would increase from **0.107 lb/MMBtu in 2015 to 0.158 lb/MMBtu in 2017—*an increase of over 47 percent in just two years, without any predicted increase in heat input***. Similarly, IPM predicts that the 2017 $1,400/ton Cost Case emission rate would be substantially higher than the historic emission rate. So, even in a world *with* the CSAPR Update Rule, Oklahoma's NOx emission rate would increase from 0.107 lb/MMBtu in 2015 to 0.142 in 2017—an increase of over 32 percent in just two years, again without any predicted increase in heat input.

The IPM Base Case prediction that the 2017 NOx emission rate will increase to 0.158 lb/MMBtu is perverse, arbitrary, and demonstrably flawed. First, 0.158 lb/MMBtu is a significant increase from both the actual (0.109 lb/MMBtu) and adjusted (0.107 lb/MMBtu) 2015 emission rates. Second, the fact that EPA's adjusted 2015 emission rate is lower than the actual 2015 emission rate shows that EPA anticipates that announced SCRs, conversions, and retirements will *lower* the emission rate by approximately 0.002 lb/MMBtu between 2015 and 2017. This cuts against the IPM prediction of a significant rate increase. Third, CAMD data for 2016 shows a NOx emission rate of 0.101 lb/MMBtu for Oklahoma,[33] which is comparable to (even lower than) the actual or adjusted 2015 emission rates and nowhere near the 2017 IPM Base Case rate of 0.158 lb/MMBtu. Fourth, the IPM prediction would require rapid degradation and/or shut-down of existing NOx control technology in Oklahoma. The effectiveness of existing NOx controls is highly unlikely to degrade at the fast pace IPM predicts. Indeed, EPA has provided no apparent explanation for why the NOx emission rate would increase so significantly in just two years.

[33] *See* https://ampd.epa.gov/ampd/.

For similar reasons, the IPM Cost Case prediction that the 2017 NOx emission rate will increase to 0.142 lb/MMBtu also is arbitrary and demonstrably flawed. Further, comparing the IPM Cost Case emission rate with the emission rate resulting under Oklahoma's final CSAPR budget indicates that EPA does not trust its own model. If IPM were relatively accurate, the IPM Cost Case emission rate (0.142 lb/MMBtu) would be closer to the final budget value (0.091 lb/MMBtu), *not more than 55 percent greater*. The fact that EPA does not rely directly on the IPM Cost Case emission rate to calculate state budgets (consistent with the Proposed Rule) shows that EPA is aware of the questionable reliability of direct use of IPM emission rate outputs. Nonetheless, EPA relied on these IPM outputs—which are patently arbitrary in Oklahoma's case—in setting state budgets.

3. Oklahoma's Budget Calculation

The Perverse IPM Result led to an unrealistically and arbitrarily low budget for Oklahoma. Critically, the Perverse IPM Result overestimates the amount of emissions reductions available in the state. That is, because the IPM Base Case emission rate is unrealistically high, the emission rate "delta" between the 2017 IPM Base Case and Cost Case also is unrealistically high.[34] This error—a NOx emission rate "delta" that is too high—then carries through the entire calculation, ultimately resulting in final IPM-predicted 2017 emissions that are too low. For Oklahoma, these IPM-predicted 2017 emissions were lower than its historic 2015 emissions. Accordingly, EPA set Oklahoma's final budget equal to these arbitrary and inaccurate IPM-predicted emissions.

Below is a step-by-step overview of EPA's calculation for Oklahoma. Values affected by the Perverse IPM Result are highlighted:

Values that are **too high** because of the Perverse IPM Result are highlighted in **green**.

Values that are **too low** because of the Perverse IPM Result are highlighted in **red**.

Step 1. Calculate ***NOx Emission Rate "Delta"*** = *(IPM Emission Rate, 2017 Base Case) - (IPM Emission Rate, 2017 $1,400/ton Cost Case)*

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[34] Even if IPM accurately predicted the relative difference between the Base Case and Cost Case emission rates, it would be inappropriate to apply this absolute "delta" value directly to an actual emissions rate. To take a simplified, extreme example: State O has an actual emissions rate of 0.1 lb/MMBtu. IPM predicts a Base Case emission rate of 0.3 lb/MMBtu and a Cost Case Emission rate of 0.2 lb/MMBtu. The "delta" between the IPM rates is 0.1 lb/MMBtu. Applying this "delta" to the historic emissions rates leaves you with an emission rate of 0.0 lb/MMBtu! The moral of the story is that if IPM-predicted rates are unrealistically high, the "delta" between these values is not something that can just be applied to a real emission rate. Indeed, in extreme cases, this "delta" can even be equal to or even bigger than the real emission rate. But if the IPM Base Case rate was effectively "capped" at the historic emission rate (0.1 lb/MMBtu in our example), there is no way the "delta" between the two IPM rates could be greater than the historic rate (the "delta" could only range from 0.0 lb/MMBtu to 0.1 lb/MMBtu in our example). This "capping" is effectively what the proposed scaling fix described below would accomplish.

= *(**0.158** lb/MMBtu) - (**0.142** lb/MMBtu)*

= ***0.016 lb/MMBtu***

In Step 1, the calculated "delta" value (0.016 lb/MMBtu) is arbitrarily high due to the Perverse IPM Result. Western Farmer's analysis, discussed in the following section, indicates that a more realistic value would be closer to 0.011 lb/MMBtu—*over 30 percent lower than the current value*. This means that EPA likely has significantly overestimated the amount of emissions reductions available in Oklahoma.

Step 2. Calculate ***"NOx Reduction Potential" Emission Rate*** = *(Adjusted 2015 Emission Rate) - (NOx Emission Rate "Delta")*

= *(**0.107** lb/MMBtu) - (**0.016** lb/MMBtu)*

=***0.091** lb/MMBTu*

In Step 2, applying the too-high "delta" value reduces the adjusted 2015 emission rate by too much—*i.e.*, by an amount greater than what is achievable in reality. This means the resulting "NOx Reduction Potential" emission rate (0.091 lb/MMBtu) is lower than what it should be had EPA relied on a more realistic "delta." Indeed, an emission rate of 0.091 lb/MMBtu is below even the rate achieved by new SCRs (0.10 lb/MMBtu) and NOx combustion controls (0.15 lb/MMBtu, at best). Achieving this rate on a statewide average basis likely would require shutting down fossil-fuel fired EGUs and constructing a sufficient number of new alternative energy sources to replace generation capacity by 2017.

Step 3. Calculate ***IPM-predicted 2017 emissions*** = *(Historic Heat Input, 2015) x ("NOx Reduction Potential" Emission Rate*

= *(**256,168,790** MMBtu) x (**0.091** lb/MMBtu) / 2000*

= **11,641** tons

In Step 3, multiplying the too-low "NOx reduction potential" emission rate by historic heat input results in IPM-predicted 2017 emissions that are too low—again, lower than what is achievable in reality. Oklahoma's final state budget of 11,641 tons likely is unattainable.

To correct the errors associated with the Perverse IPM Result, EPA must adjust the IPM emission rates in Step 1 to more realistic values.

B. Proposed State Budget Fix

Western Farmers proposes a limited adjustment to EPA's budget calculation for Oklahoma and other states affected by the Perverse IPM Result.[35] The proposal retains the Final Rule's state budget calculation formula. However, it calls for an additional "scaling" step for states with the Perverse IPM Result ("Scaling Fix"). This Scaling Fix allows EPA to keep the Final Rule's current methodology, but ensures that the methodology is not applied in an arbitrary manner that achieves unrealistic results. *See* Appendix B-1 for detailed calculations.

The proposed Scaling Fix would be applied during Step 1 of EPA's formula (calculation of NOx emission rate "delta"). It has two components:

> (1) **Scaling 2017 IPM Base Case Emission Rate to Reflect Actual 2015 Data.** Both 2017 IPM Base Case NOx emissions and 2017 IPM Base Case heat input values would be scaled to actual 2015 values. For Oklahoma, NOx emissions would be scaled from 16,506 tons to 13,922 tons. Similarly, heat input would be scaled from 208,776,019 MMBtu to 256,168,790 MMBtu. (Currently, IPM illogically predicts that emissions will increase while heat input will decrease between 2015 and 2017. This makes predicted NOx emission rates unachievable if fuel consumption remains constant in reality. The Scaling Fix reflects relatively flat levels of fuel consumption and emissions over the next two years.) Oklahoma's scaled 2017 IPM Base Case emission rate would be **0.109 lb/MMBtu**.
>
> (2) **Scaling 2017 IPM Cost Case Emission Rate, Based on a Scaling Factor Derived From Part 1.** Both 2017 IPM Cost Case NOx emissions and 2017 IPM Cost Case heat input values would be scaled by a scaling factor derived from part one—*i.e.*, by the same relative amount that NOx emissions and heat input were scaled for the IPM Base Case emission rate. For Oklahoma, the scaling factor would be 0.84 for NOx emissions and 1.23 for heat input. Accordingly, NOx emissions (for the 2017 IPM $1,400/ton Cost Case) would be scaled from 14,720 tons to 12,353 tons. Heat input would be scaled from 207,804,804 MMBtu to 255,435,708 MMBtu. Oklahoma's scaled 2017 IPM $1,400/ton Cost Case emission rate would be **0.095 lb/MMBtu**.

Then, the NOx emission rate "delta" (Step 1 of EPA's formula) would be calculated based on these scaled IPM emission rates. For Oklahoma, this scaled "delta" value would be **0.011 lb/MMBtu**, *about 31 percent lower than the "delta" value used in the Final Rule (0.016 lb/MMBtu)*. The rest of EPA's formula (Steps 2 and 3) would then be applied as currently described in the Final Rule. This should result in a final budget for Oklahoma of 12,309 tons, or

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[35] Western Farmers' analysis indicates that the Perverse IPM Result negatively affects the budgets for six other states: Indiana, Kansas, Michigan, Missouri, Mississippi, and Texas.

about 668 additional tons compared to the Final Rule budget. *See* Table 4 below; *see also* Appendix B-1.[36]

C. The Proposed State Budget Fix Would Preserve Air Quality Benefits

The proposed Scaling Fix would preserve the Final Rule's air quality benefits. Western Farmers analyzed the impact of applying the Scaling Fix to all seven states whose Final Rule budgets are negatively affected by the Perverse IPM Result on reductions of ozone design values (average and maximum) in 2017 at 19 downwind nonattainment and maintenance receptors.[37] As Table 3 shows, these results indicate no change in average reduction of ozone average design values, and a minimal decrease in average reduction of ozone maximum design values, from the Final Rule. *See* Appendix C-1 for detailed underlying calculations. If the Scaling Fix is applied *only* to Oklahoma, then there is *no change* in average reduction of ozone average or maximum design values. *See* Appendix C-2 for detailed underlying calculations.

Table 3. Impact of Scaling Fix on Average Ozone Reduction at 19 Nonattainment and Maintenance Receptors, Based on AQAT.

	Historic Actual 2015 (7 States)	Final Rule	Scaling Fix (7 States)	Scaling Fix (Oklahoma Only)
Avg. Reduction of Ozone Average Design Values (ppb)	0.15	0.28	0.28	0.28
Avg. Reduction of Ozone Maximum Design Values (ppb)	0.16	0.29	0.28	0.29

Further, the Scaling Fix would not dramatically increase state budgets. Table 4 shows the impact of applying the Scaling Fix to the seven affected states. As shown, the Scaling Fix generally would raise state budgets to levels somewhere in-between current Final Rule budget and historic emissions levels. For four states, the Scaling Fix would increase Final Rule budgets by less than 100 tons. Oklahoma is the only state whose budget would increase by more than

[36] Appendix B-2 shows updated Oklahoma unit allocation calculations using the EIA data-substitution described in Part I *and* the proposed state budget Scaling Fix. Under this method, the Anadarko Plant units would receive 55, 56, and 60 units each (171 units combined).

[37] Western Farmers used the same AQAT-based methodology that EPA describes in the Regulatory Impact Analysis (consistent with the Ozone Transport Analysis Final Rule TSD and the preamble to the CSAPR Update Rule). *See* Regulatory Impact Analysis at 3-9 to 3-10.

500 tons. Overall, the Scaling Fix would increase all seven state budgets by a combined total of just over 1,400 tons:[38]

Table 4. Impact on State Budgets of Applying the Proposed Scaling Fix.

State	Historic Actual 2015 Emissions (tons)	Final Rule Budget (tons)	Scaling Fix Budget (tons)	Change (Final Rule and Scaling Fix Budget) (tons)
Indiana	36,353	23,303	23,377	**74**
Kansas	8,136	8,027	8,027	**0**
Michigan	21,530	17,023	17,377	**354**
Missouri	18,855	15,780	15,798	**18**
Mississippi	6,438	6,315	6,336	**21**
Oklahoma	13,922	11,641	12,309	**668**
Texas	55,409	52,301	52,591	**290**
Total	**160,643**	**134,390**	**135,815**	**1,425**

D. Western Farmers Could Not Have Reasonably Anticipated the Changes in EPA's Methodology

Western Farmers' could not have reasonably anticipated that EPA would pull a "surprise switcheroo" and change its state budget calculation methodology so significantly between the Proposed and Final Rules, slashing Oklahoma's budget by more than 25 percent. In particular, EPA did not provide notice that the Agency would change its formula for calculating model-predicted emissions to include (1) adjusted historic emission rates based on a newly-developed dataset; or (2) IPM-derived emission rate "deltas" that rely on the difference between IPM Base

[38] Western Farmers' preliminary analysis indicates that applying the Scaling Fix to all 22 CSAPR Update states likely would decrease the budgets for 14 out of the 15 states without the Perverse IPM Result (all states but Virginia). However, further state-by-state scrutiny would be needed to ascertain the impact of the Scaling Fix on all CSAPR Update states. Further, Western Farmers notes that the Scaling Fix is specifically designed to address a modeling flaw that is common to a small subset of states. The Scaling Fix may not be appropriate to apply to states without the Perverse IPM Result.

Case and IPM Cost Case emission rates.[39] Nor did EPA provide notice that it would finalize a methodology that entailed applying IPM-derived emission rate "deltas" to historic emission rates.[40] Had EPA done so, Western Farmers would have analyzed and submitted comments on the impact on Oklahoma's budget of EPA's unrealistic and arbitrary assumptions, including the Perverse IPM Result.

EPA characterizes the changes in the Final Rule's formula as a "refinement" to the proposed approach. *See* 81 Fed. Reg. 74,547.[41] However, the alterations go far beyond mere refinements. First, as EPA acknowledges, the Agency had to develop an adjusted historical dataset to derive the adjusted historic emission rates. *Id.* Second, EPA had to add at least two additional steps to its calculation methodology. The Proposed Rule's methodology consisted of one basic step: multiply historic heat input by an IPM Cost Case emission rate. The Final Rule's methodology is a complex, three-step process: (1) calculate an emission rate "delta" by subtracting an IPM Cost Case emission rate from an IPM Base Case emission rate; (2) calculate a "NOx reduction potential" emission rate by subtracting this "delta" from an adjusted historic emission rate; and (3) calculate IPM-predicted 2017 emissions by multiplying the "NOx reduction potential" emission rate by historic heat input. *Id.* at 74,548. This three-step process, based in part on a newly-developed historical dataset, is no logical outgrowth of the Proposed Rule's single-step process that did not rely on "adjusted" historic data. For these reasons, EPA must reconsider, at least in the proposed limited fashion, the CSAPR Update Rule.

CONCLUSION

In sum, Western Farmers requests that EPA recalculate (1) unit-level allowance allocations for the Anadarko Plant units, using the data-substitution method called for in Final Rule and based on monthly (not annual), reported (not adjusted) data; and (2) Oklahoma's state budget, using the proposed limited "scaling" adjustment to the Final Rule's existing calculation methodology to ensure arbitrary IPM outputs do not distort the calculation.

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[39] Notably, the Proposed Rule include did not include an IPM 2017 Base Case emission rate in its formula, only an IPM Cost Case emission rate. The IPM 2017 Base Case emission rate is the primary driver of the Perverse IPM Result.

[40] While EPA sought comment "on all aspects of quantifying state emissions budgets reflecting upwind obligations," 80 Fed. Reg. 75,739, it is unreasonable to expect that commenters could have anticipated and commented on *all* possible permutations of EPA budget calculation formula. EPA's blanket request for comment does not amount to notice that the Agency would introduce new variables, complex calculation steps, or underlying datasets—much less all three.

[41] EPA further asserts that the "final rule methodology for setting emission budgets reflects the CSAPR Update proposal in that it retains the approach of multiplying historical state-level heat input by state-level emission rates that reflect EGU NOX reduction potential." *Id.* As EPA seems to implicitly acknowledge, any methodological similarities between the two approaches exist at only a very high level. Critically, as discussed above, EPA's approach for determining "state-level emission rates that reflect EGU NOX reduction potential" changed dramatically between the Proposed and Final Rule.

Dated: December 22, 2016

Respectfully submitted,

/x/ Brian Hobbs

Brian Hobbs

VP, Legal & Corporate Svcs.

Western Farmers Electric Cooperative

Enclosures (CD-Rom):

Appendix A-1:	**Unit-Level Allocations with EIA Substitution (Final Rule)**
Appendix A-2:	**EIA Data Substitution Calculations**
Appendix B-1:	**Revised Appendix E State Budgets (Scaling Fix)**
Appendix B-2:	**Revised Unit-Level Allocations with EIA Substitution (Scaling Fix)**
Appendix C-1:	**AQAT (Scaling Fix -- 7 States)**
Appendix C-2:	**AQAT (Scaling Fix -- Oklahoma Only)**