

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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Cathy Stepp, Secretary

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February 1, 2016

Ms. Gina McCarthy
Administrator
U.S. Environmental Protection Agency
Attention: Docket ID No. EPA-HQ-OAR-2015-0500
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Subject: Comments on EPA's Proposed Cross-State Air Pollution Rule Update for the 2008 Ozone National Ambient Air Quality Standards, Docket ID No. EPA-HQ-OAR-2015-0500

Dear Administrator McCarthy:

The Wisconsin Department of Natural Resources (WDNR) submits the following response to EPA's proposed Cross-State Air Pollution Rule (CSAPR) Update for the 2008 Ozone National Ambient Air Quality Standards (NAAQS) as published on December 3, 2015 (80 Fed. Reg. 75706). In this proposed rule, EPA is proposing to update CSAPR to address interstate emission transport with respect to the 2008 ozone NAAQS, among other purposes.

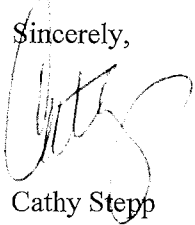
WDNR's comments on this proposal are attached. The more significant comments include the following:

- For the numerous legal and technical reasons, Wisconsin should not be included in the CSAPR Update.
- EPA's proposed 2017 NOx ozone season budget for Wisconsin is factually and analytically unsupported and would present significant compliance challenges for Wisconsin's well-controlled utility fleet. Should Wisconsin remain in final rule, EPA must make the changes identified in these comments and correct the state's budget.
- EPA's proposed rule is wholly inequitable. The process used to set budgets results in the highest emitting states receiving the highest budgets. As a result, the states that need to reduce emissions the most will have the least incentive to do so. In contrast, states with very well-controlled EGUs, such as Wisconsin, receive unrealistically small budgets.
- EPA once again fails to adequately address the Sheboygan County, Wisconsin ozone nonattainment area, even though EPA's analysis confirms that Sheboygan's diminished air quality is due to out-of-state emissions. EPA's final rule must ensure emissions from upwind states are sufficiently reduced so that Sheboygan will attain the 2008 ozone NAAQS by 2018. Failing this, EPA must either remove the nonattainment designation from this area or otherwise give the area regulatory relief from a situation over which it has no control and that EPA has elected not to rectify.
- EPA must re-propose this rule prior to finalization. States and utilities were given insufficient time to evaluate this proposal but, in the time available, identified numerous flaws in EPA's data and methodology that must be corrected. The public must have an opportunity to review EPA's revisions and provide additional feedback prior to the final rule.

Ms. Gina McCarthy, Administrator
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If you have any questions about these comments, please contact David Bizot, Regional Pollutant and Mobile Sources Section Chief, at David.Bizot@Wisconsin.gov or (608) 267-7543.

Sincerely,

A handwritten signature in black ink, appearing to read "Cathy Stepp", written in a cursive style.

Cathy Stepp

cc: Ellen Nowak, Chairperson, Public Service Commission of Wisconsin
Bart Sponseller, Deputy Administrator, Environmental Management Division
Gail Good, Director, Air Management Program

Attachment

Attachment
Comments by the Wisconsin Department of Natural Resources (WDNR) on
EPA's Proposed CSAPR Update

WDNR provides the following comments on EPA's proposed rule.

SECTION I: GENERAL

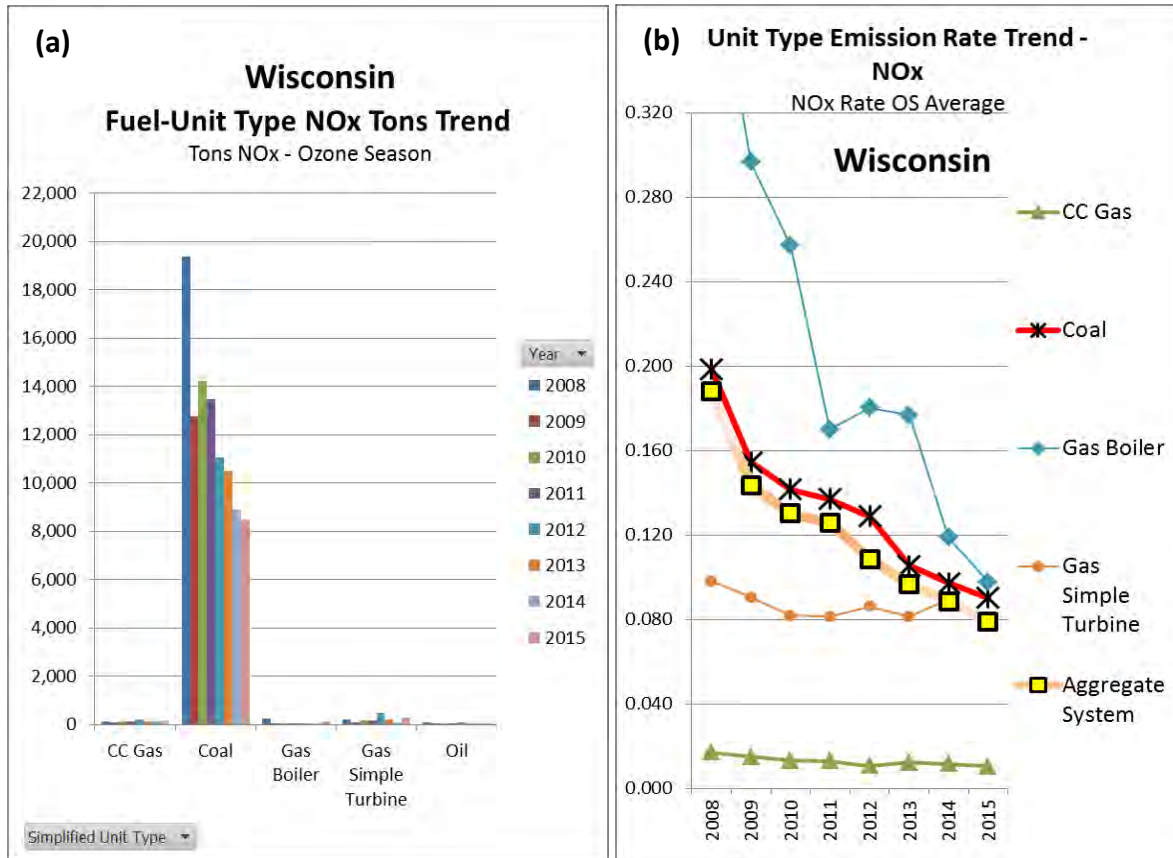
1. Wisconsin should not be included in the proposed CSAPR Update.

EPA requests comment on Wisconsin's inclusion in the proposed ozone season trading program. This is because EPA does not project significant emission reductions from the state.

EPA should not include Wisconsin in the proposed CSAPR Update. First, EPA inappropriately includes Wisconsin in the rule as the state only impacts maintenance receptors and EPA has not shown how the state's impact will interfere with maintenance at these receptors (see Section II). In addition, EPA's proposed emission budget for Wisconsin is unachievable and inequitable given the level of controls currently in place in Wisconsin. EPA's own modeling shows that additional emission reductions from Wisconsin's electricity generating units (EGUs) cannot be achieved by cost-effective controls that can be implemented by 2017.

EPA's proposed rule ignores that Wisconsin already operates one of the most well-controlled fossil generation systems for both coal steam and natural gas combined cycle operations. As shown in Figure 1, Wisconsin coal EGUs are already meeting or exceeding the NO_x control objectives described in the proposal to be cost effective at \$1,300 per ton. Wisconsin has adopted two iterations of NO_x emission limits for large point sources (RACT) within the previous 1-hour and 8-hour ozone nonattainment area. Also, facilities operated by the major Wisconsin utilities are in binding agreements (e.g., federally enforceable consent decrees) to operate their selective catalytic reduction controls (SCRs) below specified emission rates and to utilize low-NO_x combustion systems that emit NO_x at rates well below the level assessed by EPA in the proposed rule. The consent decrees include unit and system level mass caps and require the repowering, refueling or retirement of a handful of uncontrolled higher emission rate units. Since the system is already optimized for NO_x emission reduction, the remaining units cannot be controlled further than they already are. Therefore, if EPA retains Wisconsin in the rule, it must reflect a budget and underlying emission rate for 2017 that fully acknowledges the state's well-controlled system.

Figure 1. Trends in Wisconsin EGU NOx emissions in mass (a) and rate (b), 2008-2015.



SECTION II:
EPA’S TREATMENT OF MAINTENANCE UNDER THE CLEAN AIR ACT (CAA)

As stated in comment 1, Wisconsin should not be included in the CSAPR Update. If, however, Wisconsin is subject to the final rule, the final rule must differentiate between a state’s effect on maintenance and nonattainment receptors,

2. EPA’s application of the same methodology for upwind state contribution to nonattainment and maintenance receptors is contrary to existing CAA requirements for addressing maintenance

States such as Wisconsin that are only linked to maintenance areas should not bear the burden of ensuring maintenance at out-of-state receptors when other tools under the CAA already exist to safeguard against backsliding. First and foremost, EPA should not require emission reductions in states linked to maintenance areas with approved maintenance plans. By definition, when EPA approves a maintenance plan for a former nonattainment area, it is acknowledging that the emissions reductions and control strategies included in the plan have been demonstrated to be adequate for maintenance purposes. By its methodology under the CSAPR Update, EPA disregards the existence of these plans and continues to require unnecessary reductions from upwind states.

An example of this is the approved maintenance plan for Allegan County, Michigan. Wisconsin is included in the CSAPR Update due to its link to the maintenance receptor at Allegan. Yet, in Allegan County's maintenance plan, only local volatile organic compound emissions, not nitrogen oxide emissions, are targeted for possible future reductions necessary to assure attainment. *See* 75 F.R. 42,018, 42,026-29 (July 20, 2010) Requiring any further reductions of NO_x from Wisconsin sources for contributions to the Allegan monitor is unfounded when the maintenance plan projects substantial, and sufficient, reductions in NO_x through 2020 with only “the NO_x SIP Call, certain State rules, consent decrees resulting from enforcement cases, and ongoing implementation of a number of mobile source rules.” *See* 75 F.R. 42,018, 42,027 (July 20, 2010).

3. Emission budgets for states that only impact maintenance sites (like Wisconsin) should be less stringent than emission budgets for states linked to nonattainment sites.

In previous transport decisions, the Court affirms the phrase “interfere with maintenance” under the CAA “is not an open-ended invitation for EPA to impose reductions on upwind States.” *EME Homer City Generation, L.P. v E.P.A.*, 696 F.3d 7, 27 n. 25 (D.C. Circuit 2012) While EPA claims that it gave independent effect to the phrases “contribute significantly to nonattainment” and “interfere with maintenance” in the proposed rule, in fact EPA only differentiated between the two in the manner that it identified the receptors. Once a receptor point is identified as a nonattainment receptor or a maintenance receptor, EPA imposes the same methodology on both to determine required emission reductions. This inappropriately results in the same level of burden on upwind states, whether they are deemed to “contribute significantly to nonattainment” or “interfere with maintenance.”

The CAA requires EPA to implement the good neighbor provision in a way that treats states that only impact maintenance areas differently. While the CSAPR Update acknowledges that nonattainment and maintenance are two separate prongs of the good neighbor provision, EPA's analysis needs to consider more than just linkages to receptors. EPA should develop and apply maintenance emission budgets that are less stringent than emission budgets for states linked to nonattainment sites. EPA should take the following actions in addressing states linked only to maintenance areas:

- A. EPA should require emissions reductions in states linked only to maintenance areas only if reductions made to meet nonattainment receptors do not first achieve maintenance.

EPA should first determine if emissions reductions taken by states to meet the needs of nonattainment receptors would also realize the reductions needed for maintenance receptors. If so, no further reductions should be required, and states like Wisconsin would continue to be subject to the original CSAPR program established for the 1997 ozone NAAQS. Only if it is demonstrated that additional reductions were needed should EPA then calculate additional reductions for states that are in the rule only because they are linked to maintenance areas.

- B. Emission budgets for states linked only to maintenance areas should be determined separately from nonattainment area budgets and not become applicable until at least 2020.

Maintenance is not tied to the 2018 attainment date, but is tied to the longer term issue of maintaining attainment beyond 2018. Under the CSAPR Update, EPA identifies the sites needing emission reductions to reach attainment by 2018 based on an *average* of modeled design values over a set of baseline years. EPA used the *maximum* modeled design value from that set of baseline years to identify maintenance sites. Since the maximum design value occurs much less frequently, there is

less probability that maximum emissions will occur in conjunction with conditions causing the maximum event. Therefore, it is inappropriate to have maintenance emission budgets as stringent as nonattainment budgets. EPA applied this premise in the guidance for determining emission limitations for the 2010 1-hour SO₂ NAAQS.¹

Because of the infrequent occurrence of maximum values, and also because the nonattainment test addresses 2017 through 2019 (consistent with a design value for 2018 and clean monitored data from 2017 through 2019), EPA should not implement maintenance requirements sooner than 2020 without an additional demonstration that an earlier maintenance requirement is warranted. In assessing requirements starting in 2020, it is also more likely that the IPM model response will be more accurate. In fact, if IPM predicts lower emissions in the 2020 timeframe, it is possible maintenance can be achieved without requiring any additional reductions from the base case.

4. A site should not be designated as a maintenance receptor unless both EPA's model assessment and monitored data demonstrate an issue.

EPA designates nonattainment sites under the CSAPR Update only if both the modeling assessment and monitored data show nonattainment. EPA, however, only uses modeled data to determine sites that are problematic for maintenance.

To be consistent, EPA should designate a site as a maintenance receptor only if both the monitored data and modeling data show maintenance is problematic. This is because emissions regionally will continue to decrease under CSAPR Update attainment-related emission budgets. If the current monitored data is showing attainment, then there is no creditable basis to assume the site will experience maintenance issues. Wisconsin, being only linked to maintenance sites currently showing attainment, should therefore not be included in the rule.

Wisconsin is only linked by maintenance under EPA's proposed methodology to the Allegan and Wayne county receptors in Michigan. Both sites are currently showing attainment of the 2008 ozone standard and therefore would not be considered to have maintenance issues. Therefore, Wisconsin should not be in the CSAPR Update based on using both monitored and modeled data in determining maintenance receptors.

¹ USEPA, 2014. "Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions." Memorandum from Stephen D. Page to Regional Air Division Directors, Regions 1-10, April 23, 2014, page 14.

SECTION III: EPA'S TREATMENT OF NONATTAINMENT AREAS

5. The proposed rule fails to fully address the downwind nonattainment receptor sites (like Sheboygan, Wisconsin) most severely impacted by emissions from upwind states.

EPA acknowledges the proposed rule does not completely address the obligations of upwind states to assist downwind states with attaining and maintaining the 2008 ozone NAAQS.

EPA's proposal does not address the long-standing nonattainment problems in Wisconsin resulting from emissions from upwind states. Specifically, EPA's modeling acknowledges that Sheboygan, Wisconsin is not expected to attain the 2008 ozone NAAQS even if the proposed rule is fully implemented. This is a critical failure of the rule. To fully address its obligation to provide a federal plan to meet unresolved good neighbor obligations, EPA must revise this rule to ensure the reductions being required of upwind states completely reflect their contributions to downwind state nonattainment receptors (as determined by EPA's own modeling) and ensure Sheboygan is held harmless to emissions that primarily originate from outside the state.

6. EPA needs to consider measures beyond the proposed CSAPR Update to fully address downwind states' attainment needs for the 2008 ozone NAAQS.

EPA acknowledges that the ozone season NOx budgets in the proposed rule will not achieve attainment of the 2008 ozone NAAQS for all downwind receptors in 2017 and that additional reductions may be required to fully address the states' interstate transport obligations.

In the proposed rule, EPA only considered ozone season NOx reductions achievable by the 2017 ozone season. As a result, alternatives that could not be implemented by 2017, such as requiring the installation of controls on EGUs currently uncontrolled or under-controlled, were not considered. This vastly limited EPA's ability to reduce emissions in the upwind states that contribute to continued nonattainment in places like Sheboygan, Wisconsin.

To address this issue, EPA needs to consider how to obtain additional NOx reductions, beyond the proposed 2017 budgets, from those states that contribute significantly to downwind nonattainment receptors. Specifically, EPA needs to ensure that actual emission reductions are realized in inefficient or under-controlled upwind state EGUs that contribute to nonattainment. As this is likely to necessitate the installation of new, state-of-the-art combustion controls, EPA may have to consider a longer rulemaking horizon if these controls are needed in upwind states to solve downwind state nonattainment issues. EPA should propose such a remedy for downwind nonattainment receptors for notice and comment.

SECTION IV: EPA'S PROPOSED BUDGETS

7. Wisconsin's proposed CSAPR Update 2017 ozone season NOx emission budget is both unrealistic and unachievable.

EPA proposes a 2017 ozone season NOx emission budget for Wisconsin of 5,561 tons.

Wisconsin's proposed 2017 ozone season NOx emission budget represents a 61% decrease from the current budget and is 40% lower than reported 2015 ozone season NOx emissions. It is impossible for Wisconsin to achieve the proposed budget by 2017 through actual reductions. Realizing such large reductions would mean installing new, extremely expensive controls, which EPA acknowledges cannot be completed by 2017. In addition, Wisconsin's EGU fleet is already well-controlled (see comment 1), so that it would be challenging to meet this budget on any timeframe through emission reductions. Instead, Wisconsin utilities would be forced to purchase allowances to comply.

EPA's own analysis concludes that "nearly zero reductions are available in Wisconsin in 2017 at the proposed \$1,300 per ton cost threshold." EPA is not justified in proposing to reduce Wisconsin's ozone season budget by 61%. If Wisconsin is included in the final CSAPR Update, the state's budget must be significantly adjusted upward to require far fewer emission reductions (see comment 8).

8. If Wisconsin remains in the CSAPR Update, EPA must recalculate the state's 2017 ozone season NOx emission budget.

EPA derives Wisconsin's proposed 2017 ozone season NOx emission budget of 5,561 tons using the IPM model (v. 5.15) to project emissions for 2018 based on implementing control measures at \$1,300 per ton of control and then adjusting for actions that would not have occurred by 2017. EPA specifically requests comment on how the emission budgets are derived.

As mentioned above, Wisconsin should not be included in the final CSAPR Update. If, however, Wisconsin remains in the final rule, EPA must recalculate and significantly revise the state's 2017 NOx emission budget.

As described in detail in Section V, EPA's methodology used to develop state emission budgets contains numerous errors and is overly reliant on the IPM model. As a result, EPA's proposed budget for Wisconsin grossly overestimates appropriate emission reductions and does not reflect how the state's EGUs will actually operate in 2017. EPA should maintain the current CSAPR 2017 budget for Wisconsin of 14,296 tons or otherwise establish a budget using a different methodology that results in a realistic budget for 2017.

Rather than relying on the IPM model, it is fairly simple to predict EGU operations in 2017 based on data already available. Since generation profiles or trends will not significantly change in two years, a realistic and more appropriate budget for Wisconsin can be created by simply projecting 2015 EGU generation to 2017 and adjusting it for known factors, including:

- Increasing the heat input from 2015 to 2017, based on the growth in generation.
- Calculating 2017 emissions for each EGU using actual emission rates; these emission rates should be adjusted to reflect additional controls due to federally enforceable consent decrees that will be operating by 2017, including an SCR for J.P. Madgett (0.08 lbs/mmBtu) and a

regenerative activated coke technology (ReACT) control device for Weston 3 (0.10 lbs/mmBtu).

9. EPA should adjust the variance levels to ensure a more equitable result among the impacted state budgets.

EPA's proposed variance levels by state reward the highest emission rate states (21% of the proposed budget on a NOx mass emission basis) with the largest variance pools, regardless of their share of actual heat input (power generation) proportion.

The proposal continues the original CSAPR variance structure and perpetuates the basic budget inequities among the impacted states. EPA should address this problem by adjusting the calculated individual state variance limit with state historic heat input weighted against the 23 state total historic heat input. For example, using 2014 data, the calculation would be:

Total 23-state budget 2017 tons NOx x 21% x [2014 state heat input/2014 total 23-state heat input]

Using this method, Wisconsin's variance would be:

311,867 tons NOx x 21% x [205.306 Tbtu/7,581.394 Tbtu] = 1,774 variable tons NOx

The total variability pool remains the same (65,492 tons), but is allocated to each of the participating states based on heat input share, rather than mass NOx emissions basis.

SECTION V: EPA'S DATA, ASSUMPTIONS, AND METHODOLOGY

EPA requests comment on the data and assumptions used for the proposed rule, including the methodology used to set state budgets.

EPA's technical methodology underlying the rule contains numerous flaws, oversights, and erroneous assumptions. As a result, the proposed rule fails to accurately reflect likely EGU operating conditions in 2017. This is a critical problem, as the proposed state budgets are generated using these results. WDNR offers some corrections in these comments, and stresses that EPA must continue to work with states and utilities after this comment period to ensure the data used in the final rule is as accurate as possible.

10. EPA must not solely rely upon the IPM model to forecast EGU operations in 2017.

EPA relies too much on the IPM model to forecast power sector operations on 2017.

The IPM model is not particularly accurate at short-term projections. Given the very short time horizon for the CSAPR Update, EPA should instead predict 2017 EGU operations by adjusting known actual emissions using off-model analyses. WDNR suggests such a methodology for Wisconsin (see comment 8), which would result in a far more accurate projection of likely 2017 EGU emissions when compared to IPM's results.

EPA should also consider using models other than IPM when developing this rule. The Eastern Regional Technical Advisory Committee (ERTAC) forecasting tool is one such option. The ERTAC tool is more refined because it resolves system operation on an hourly basis. Unlike IPM, the tool produces a stable future picture of system loading patterns and does not arbitrarily (and unrealistically) shift generation from a slightly more expensive, newly controlled unit to a different unit. As a result, the ERTAC tool produces a more accurate forecast of near-term conditions.

EPA also needs to coordinate with regional transmission organizations (RTOs) and independent system operators (ISOs) to ensure its power sector projections for 2017 are realistic and match what the grid operators are forecasting. Similar efforts were pursued during the development of the NOx State Implementation Plan (SIP) call, the Clean Air Interstate Rule, and the original CSAPR.

11. EPA's modeling must not shut down Wisconsin EGUs that will be operating in 2017.

EPA's IPM 5.15 modeling inappropriately shuts down units that are not forecast to retire and that will be needed for reliability purposes, generation needs, or otherwise have historically operated under the conditions predicted for 2017.

Wisconsin has identified EGUs that were inappropriately shut down in the IPM 5.15 model run (Figure 2). These EGUs must be restored in the final rule, for several reasons.

First, Wisconsin's utilities have confirmed they have no plans to retire any of these EGUs by 2017. In order to retire these EGUs individually, the utilities would have to notify MISO, which would then conduct a study to either approve or deny the proposed retirement; this notification would have to occur at least six months prior to any retirement, and to date has not occurred for any of the listed units. More importantly, to retire units on this scale in the timeframe assumed by EPA would require the state and MISO to conduct reliability and strategic assessments, a process that would take several years.

In addition, the following market factors and generation trends, many of which were not fully considered by EPA in its methodology, support the operation of these EGUs at least through 2017:

- Since 2007, utilities have invested over \$1.4 billion in pollution control equipment at several of these EGUs (see comment 12).
- Wisconsin's overall fossil-fuel generation has been increasing, not decreasing (see comment 13).
- These EGUs have been proven to dispatch at the low natural gas prices forecast in the proposed rule (see comment 14).
- These EGUs have consistently operated at the capacity factors shown in the table and were responsible for over 22% of Wisconsin's fossil-fuel generation in 2015.

Figure 2. Wisconsin EGUs incorrectly shut down in IPM 5.15 results.

EGU	Ozone Season Capacity Factor			Percent of 2015 WI Generation	Unit Type	Investments	Cost (Million\$)
	2012	2013-2015	2015				
Columbia-1	92%	77% ^a	67%	5.7%	Core Generation	Since 2011: FGD/FF; Turbine & Pulverizer upgrades ~ 5% eff. incr. An SCR is scheduled to begin operation in 2019.	907
Columbia-2	85%	67% ^a	62%	5.4%	Core Generation		
Edgewater-4	56%	69%	71%	3.4%	Core Generation		
Manitowoc-8	6%	12%	9%	0.1%	CHP-Dedicated Use	Hg / Cl injection control equipment / monitoring equipment to begin operation in 2017.	0.8
Manitowoc-9	23%	24%	23%	0.2%	CHP-Dedicated Use		
Oak Creek-7	19% ^b	60%	66%	3.8%	Core Generation	FGD / SCR in 2012	208
Pulliam-7	28%	39%	22%	0.3%	Grid Support	DSI / ACI for Hg and Cl control began operation in 2015.	4.5
Pulliam-8	44%	49%	31%	0.7%	Grid Support	DSI / ACI for Hg and Cl control began operation in 2015.	4.5
Weston-2 ^c	41%	11%	0.3%	0.0%	Natural Gas – Intermittent Load Capacity	Converted to 100% natural gas during 2015	
Weston-3	75%	68%	48%	2.4%	Core Generation	ReACT NOx/SOx/Hg Control to begin operation in 2017.	288
Total				22%			\$1,409

^a The 2013-2015 average capacity factor for Columbia units is based on 2013 and 2015 operation. Operation during 2014 was significantly curtailed during installation of pollution control equipment and upgrades.

^b 2012 utilization of Oak Creek-7 is low due to installation of pollution control equipment in 2012.

^c Weston 2 did not operate in 2015 due to MATS requirements and while undergoing conversion to 100% natural gas operation. This unit is intended to operate as clean intermittent capacity.

12. EPA’s methodology must account for the major investments utilities have made in pollution control equipment in specific EGUs that will require those units to operate in 2017 and beyond.

EPA’s modeling fails to account for the significant capital investments utilities have made in pollution control equipment.

Figure 3 shows that utilities have invested over \$3.4 billion in pollution control equipment at Wisconsin EGUs since 2007. This type of investment is recovered over a 10-20 year period. Utilities made these investments because they plan to operate these EGUs beyond 2017.

EPA’s IPM modeling used for the proposed rule does not account for these capital investments. Instead, the model compares only *operating costs* associated with generating power (and capital costs associated with a model-specified retrofit) when determining which EGUs will dispatch. As a result, IPM vastly under-predicts generation for any EGU that might still have capital investments to recuperate. In Wisconsin’s case, not considering known capital investments in pollution control equipment results in IPM 5.15 shutting down many Wisconsin EGUs that WDNR knows will continue to operate to pay off these substantial investments (see comment 11). EPA must ensure that its methodology fully accounts for past capital investments in pollution control equipment in the final rule.

Figure 3. Significant capital expenditures on Wisconsin EGUs scheduled to operate beyond 2017.

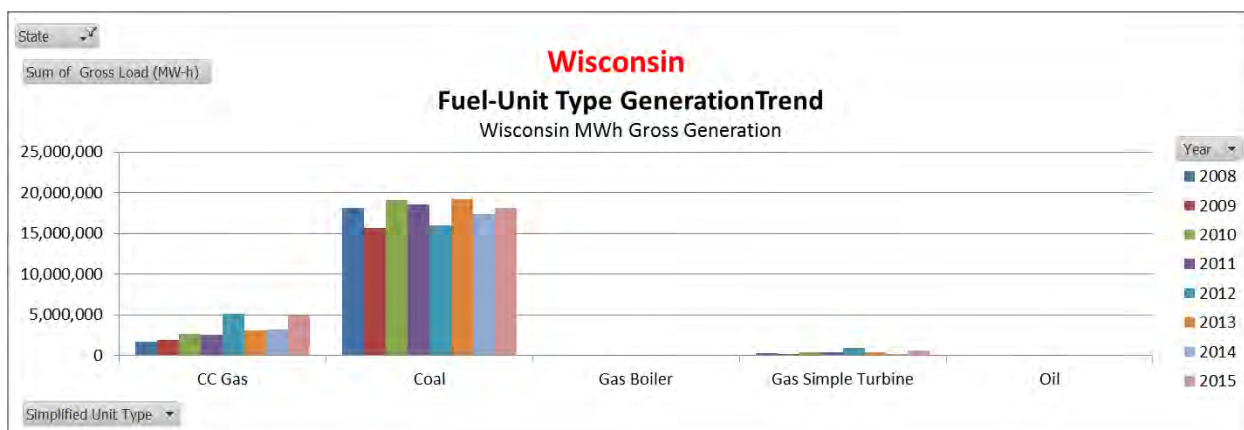
EGU	Completed Date	Project	Million \$
Pleasant Prairie 1 & 2	2007	wFGD / SCR	325
Columbia 1 & 2	2015 - 2019	FGD / FF / SCR, Turbine & Pulverizer upgrades ~ 5% eff. incr.	907
Oak Creek 5-8	2012	FGD / SCR	830
Pulliam 7 & 8	2015	DSI / ACI for Hg and Cl control	9
Weston 3	2017	ReACT NOx/SOx/Hg Control	288
Genoa	2013	FGD	200
JP Madgett	2014 - 2016	FGD / SCR	200 ¹
Edgewater 5	2013 - 2017	SCR / FGD	568
Manitowoc 9	2007	Installation - clean fluidized bed boiler	80
Manitowoc 8 & 9	2016	DSI / ACI for Hg and Cl control, Monitoring equipment	0.8
Valley	2015	Conversion to Natural Gas	70
Weston 2	2015	Conversion to Natural Gas	NR
Total			\$3,478 Million

¹ Cost does not include the SCR
NR = No record

13. EPA’s methodology does not reflect that (1) Wisconsin’s coal and natural gas combined cycle (NGCC) capacity utilization is increasing, and (2) the state’s overall generation demand is increasing at a sector average 2 percent per year growth under dispatch by MISO.

EPA’s IPM model incorrectly predicts that coal capacity utilization in Wisconsin will decrease. In fact, efficient Wisconsin coal and NGCC generation has proved to be competitive, as demonstrated by its increasing share of overall generation under MISO dispatch during the ozone season (see Figure 4). This data shows that natural gas is not simply replacing coal generation, as predicted in the IPM model. A continuation of this trend is supported by the fact that generation by the coal EGUs has been increasing, even though natural gas pricing has historically been less than predicted under the IPM model 5.15 (see comment 14).

Figure 4. Wisconsin historic fossil fuel generation: 2008-2015 ozone seasons.



EPA must apply this demonstrated trend when establishing CSAPR Update ozone season emission budgets for Wisconsin. WDNR did this analysis by evaluating growth for each specific type of generation over the last four years; this growth trend was continued through 2017 (see Figure 5). The WDNR analysis shows that, from 2015 through 2017, coal EGU generation is projected to grow 1.5 percent and NGCC generation is projected to grow 13 percent.

Figure 5. Projected generation growth from 2015 to 2017.

Generation Type	2015 MWh	2017 MWh	2015 – 2017 Percent Growth
NGCC	4,854,082	5,499,675	13%
Coal	18,138,143	18,419,102	1.5%
Natural Gas Boiler	50,429	52,194	3.5%
Simple Comb. Turbine	577,280	600,372	4.0%
Oil	665	692	4.9%

14. EPA’s modeling must reflect that the coal portion of Wisconsin’s fossil-fuel generation has maintained market share, even during recent periods of lower natural gas prices.

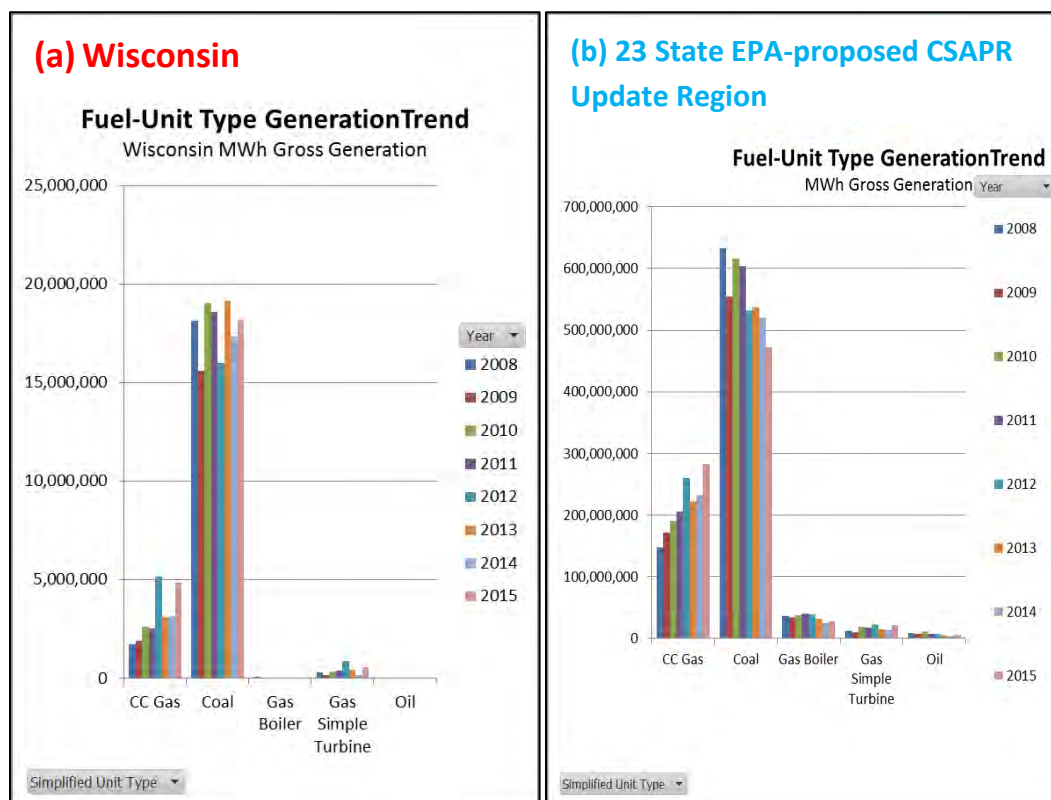
The IPM model presumes that numerous Wisconsin coal EGUs will no longer operate due to the natural gas prices EPA uses in its modeling. In addition, IPM 5.15 reduces Wisconsin’s total forecast fossil generation by 10%, taking the reduction entirely from the coal generation. As a result, the model incorrectly forces many Wisconsin coal EGUs to shut down in 2017.

In contrast, WDNR’s data shows that coal generation accounted for 72% of Wisconsin’s total fossil-fuel generation during the hot summer of 2012, when gas prices dropped to their lowest summer price in many years (see Figure 6). The state’s absolute generation of both coal and natural gas are also growing; this runs counter to most of the 23-state CSAPR Update region as a whole, where gas is more rapidly substituting coal generation (see Figure 7). As a result, units EPA predicts will retire in Wisconsin will actually not do so. For this and other reasons, EPA cannot curtail Wisconsin coal EGU operation in the final rule (see comment 11).

Figure 6. Impact of natural gas prices on Wisconsin’s EGU generation, 2009-2015.

Limited Natural Gas Pricing Impact on Wisconsin's Growing Fossil Generation	2009 OS	2010 OS	2011 OS	2012 OS	2013 OS	2014 OS	2015 OS	2017/18 forecast
Wisconsin Natural Gas Price Sold to Electric Power Consumers (Dollars per Thousand Cubic Feet) - EIA (Ozone Season Average) [-Mcf to MMBtu ~ 1:1]	4.03	5.04	5.15	3.10	4.48	5.15	4.84	
U.S. Natural Gas Electric Power Price (Dollars per Thousand Cubic Feet) - EIA (Ozone Season Average) [-Mcf to MMBtu ~ 1:1]	4.42	5.06	4.99	3.39	4.39	4.65	3.46	
IPM 5.15 Natural Gas Prices (2011 \$/MMBtu) July 2015 Forecast								4.51
Henry Hub Delivered								4.71
CC Gas Ozone Season Generation (TW-h)	1.9	2.6	2.5	5.2	3.1	3.2	4.9	
CC Gas Ozone Season Generation (Indexed to 2009)	1.00	1.36	1.32	2.69	1.62	1.65	2.53	
CC Gas Share - WI Fossil Generation	10.8%	11.8%	11.7%	23.3%	13.7%	15.3%	20.6%	
Coal Generation - Ozone Season (TW-h)	15.6	19.0	18.6	16.0	19.2	17.4	18.1	
Coal Generation - Ozone Season (Indexed to 2009)	1.00	1.22	1.19	1.03	1.23	1.11	1.16	
Coal Share - WI Fossil Generation	88.1%	86.4%	86.4%	72.4%	84.5%	83.9%	76.8%	
Total Fossil Generation - Ozone Season (TW-h)	17.7	22.0	21.5	22.1	22.7	20.7	23.6	
Total Fossil Generation - Ozone Season (Indexed to 2009)	1.00	1.22	1.19	1.03	1.23	1.11	1.16	

Figure 7. Wisconsin generation by fuel type (a) compared with the 23-state CSAPR Update region (b).



15. EPA's methodology needs to be adjusted to consider both the type of coal boiler and the capabilities of state-of-the-art combustion controls.

EPA proposes calculating 2017 ozone season NO_x emission budgets based on the emission reduction benefit that could be achieved via installation of "state-of-the-art" combustion control for existing EGUs that have not fully optimized NO_x reduction in that fashion. In the proposal, EPA assumed (1) a generic coal boiler with a base emission rate of 0.50 lb/mmBtu and (2) that applying state-of-the-art combustion control upgrades would result in a 41% reduction of NO_x. EPA is seeking comment on this assessment.

EPA's generic coal boiler with a base emission rate of 0.50 lb/mmBtu, after state-of-the-art combustion control upgrades, emits at a "controlled" rate of 0.25 lb/mmBtu. EPA used 0.25 lb/mmBtu as a floor in the IPM 5.15 model for applying "state-of-the-art" combustion control levels for coal-fired units. This seems inappropriately high in light of a Wisconsin fleet of coal-fired units that have averaged approximately 0.12 lb/mmBtu without additional post-combustion control.

A WDNR analysis of units from EPA's CAMD database shows that the top performing coal units nationally had an emission rate of 0.12 lb/mmBtu (or lower) for tangential-fired coal units and 0.18 lb/mmBtu (or lower) for dry bottom wall-fired units (see Figure 8).² This figure also shows the heat input corresponding to the top 12 percent of units, which indicates that these top performing units represent a fairly significant portion (10% or higher) of the total heat input for the population of the respective unit types.

This analysis shows that EPA's proposed rule has not applied emission rates reflecting appropriate state-of-the-art combustion controls. For example, Wisconsin's NO_x RACT program (at \$2,500 per ton), based on the same combustion controls available now, established emission rates of 0.15 to 0.18 for coal EGUs larger than 1,000 mmBtu/hr and emission rates of 0.15 to 0.20 for coal EGUs between 500 and 1000 mmBtu/hr. EPA needs to conduct a more complete analysis of combustion controls that accounts for unit-specific factors such as type, size and age. EPA cannot expect these state-of-the-art combustion controls to be implemented by 2017 (see comment 18); therefore, EPA may have to consider a longer rulemaking horizon if these controls are needed in upwind states to solve downwind state nonattainment issues (see comment 5)

² WDNR considered the top 12 percent of units because that is similar to the methodology for setting a NESHAP limit.

Figure 8. Coal-fired units with combustion controls (2000-2014 CAMD data).

Coal Unit Type	2000-2014 Period			2014	
	Number of Units	Sum of Average Monthly Heat Input, Tbtu	12th Percentile of Base Emission Rates*, lb/mmBtu on 30-day basis (Associated Heat Input, Tbtu)	Number of Units	Sum of Average Monthly Heat Input (Tbtu)
Cell Burner	33	119	0.28 (11)	7	16.5
Cyclone & Wet-bottom Wall-fired	71	109	0.25 (19)	16	16.5
Dry-bottom Wall-fired	333	1,090	0.18 (173)	161	206
Tangential-fired	325	635	0.12 (80)	176	334

* “Base Emission Rate” is the 10th percentile lowest monthly rate for each unit over 2000-2014.

16. EPA needs to update its data and modeling to reflect comments received on the August 4, 2015 notice of data availability (NODA).

On August 4, 2015, EPA released a NODA of the transport modeling data for the 2008 ozone NAAQS (80 Fed. Reg. 46271) and requested comment on this data. EPA acknowledges it has not yet updated its modeling for the proposed rule in response to those comments.

EPA must address the comments it received on its August 4, 2015 NODA for this rule. EPA must then re-notice its data and modeling prior to finalizing the CSAPR Update. It is impossible to accurately comment on this CSAPR Update proposal because the data used is incorrect and will not be used in the final rule.

17. EPA should not include the Clean Power Plan (CPP) in any IPM modeling for the CSAPR Update.

EPA included illustrative modeling of the CPP in the baseline as well as in the analytic policy case for this proposed rule. EPA requests comment on whether to include the CPP in its baseline and policy case for the final rule.

EPA should not include the CPP in any baseline or policy case for the final rule. The CPP is currently being litigated, so it is unknown whether the rule will actually be in effect. Even if the CPP rule survives litigation without change, the first CPP implementation period begins in 2022 – five years after the 2017 summer ozone season for which CSAPR is being updated. It is inappropriate for EPA to assume any changes due to the CPP when predicting EGU operations in 2017.

18. When setting CSAPR Update emission budgets, EPA cannot assume new installation of state-of-the-art combustion controls by 2017.

EPA cannot expect new state-of-the-art combustion controls to be implemented by 2017. From WDNR's experience with implementing a NO_x RACT program, it will take at the very least three years from promulgation of a final rule to install any controls other than those already under development. This time is necessary to conduct combustion modeling, engineering design, permitting, and installation during outages as approved by the RTO/ISO. Assuming the CSAPR Update is finalized in late 2016, any combustion controls not already being implemented are therefore unlikely to be operating before 2019.

SECTION VI: EPA'S TREATMENT OF VINTAGE ALLOWANCES

19. EPA should only discount vintage 2015-2016 allowances if Wisconsin's budget is corrected.

EPA estimates total banked allowances for the CSAPR ozone-season trading program could be in excess of 210,000 tons by the start of the 2017 ozone-season compliance period, more than twice the emission reduction potential estimated at the \$1,300 per ton control level. EPA is proposing various surrender ratio options for 2015/2016 vintage allowances, such as four-for-one or two-for-one, and, on more or less restrictive approaches, which would require more than one pre-2017 banked allowance to be used for each ton of ozone season NO_x emitted in excess of a state's assurance level in 2017 and beyond.

Alternatively, EPA is also proposing that 2015/2016 allowances be utilized at full value (i.e. one-to-one), but discount the value of allowances realized after the updated program implementation (e.g. new realized allowances valued at 85%) in the first three years of program implementation (i.e. 2017, 2018, and 2019).

EPA's proposals are designed to draw down the pool of vintage banked allowances realized by the previous CSAPR program to minimize the availability of allowances for compliance. As previously mentioned, however, Wisconsin's budget is unrealistic. Consequently, discounting those allowances will only serve to further compound the problems with meeting the budget by minimizing compliance options. In addition, this will penalize Wisconsin EGUs that took early action to reduce emissions. Therefore, Wisconsin utilities should be able to keep and fully utilize their allowances. Any allowance discounting proposal to address the use of allowances should focus on states with high emissions that affect nonattainment areas and that use allowances in lieu of undertaking actual emission reductions.