

WDNR and PSCW Questions on EPA’s Clean Power Plan Proposal

The following Wisconsin utilities are submitting joint responses to Wisconsin Department of Natural Resources (WDNR) and Public Service Commission of Wisconsin (PSCW) questions regarding EPA’s Clean Power Plan Proposal:

- Dairyland Power Cooperative
- Madison Gas and Electric Company
- Northern States Power Company (Xcel Energy)
- We Energies
- Wisconsin Power and Light Company
- Wisconsin Public Service Corporation
- WPPI Energy

The responses in this document are organized consistent with the way they are presented in WDNR/PSCW’s questionnaire. To recap our sense of priority with the concerns raised within the questionnaire, we also attach the information presented to WDNR/PSCW on August 18, 2014. The response below provides joint perspective on the questions posed. In addition, some of the utilities are providing company-specific responses to further support this submittal. Additional consideration may be needed depending upon the issuance of EPA’s final rule and the revisions made to address public comments given uncertainty that currently exists in the proposal. Hereinafter, the term “Wisconsin utilities” as used throughout this response shall represent those companies listed above.

I. OVERARCHING ISSUES.

- a. **Electrical Reliability.** What factors or analyses need to be considered to evaluate impacts of this rule on electric reliability? Does the use of emissions averaging periods adequately ensure electrical reliability? Could other mechanisms help with this issue (e.g. MACT-type extensions, fail-safe/off ramp for emergencies, etc.)?

WISCONSIN UTILITIES JOINT RESPONSE:

Maintaining reliability of the grid is a critical element in a successful implementation of this rule. Sufficient long-term reliability can be planned through resource planning; however, it is often a local event in daily market operations that impacts reliability. Understanding the integrated transmission and generation system while recognizing the differences associated with generation assets is important in assessing potential reliability impacts.

When looking at it with a view of system reliability, the Integrated Planning Model (IPM), used by the EPA to evaluate the building blocks and whether goals are achievable, uses less robust data than data possessed by and used by the Midcontinent Independent System Operator (MISO). For example, MISO has performed studies of potential retirements and resulting resource adequacy due to the Mercury and Air Toxics Standards. These studies have included information about firmness of interstate pipeline deliverability for gas-fired units, plans for replacement of units, and also consider the electrical location and network deliverability of units expected to be retired. In contrast, the IPM modeling used by EPA does not appear to consider any of these factors.

Wisconsin utilities believe there is a role for the Regional Transmission Organizations (RTOs), Independent System Operators (ISOs), or the North American Electric Reliability Corporation

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(NERC) to assist in modeling the impacts of the rule on electric reliability. The models used by the RTOs, ISOs, and NERC are more sophisticated for assessing electric system reliability than is the IPM model, and these organizations also have planning expertise that could promote a more robust analysis.

System modeling should also evaluate what reserves are available under this rule and understand what resources will be called on to meet those reserves. If combined cycle units are utilized more as baseload resources, as suggested in EPA's building block 2, they may not be available to ramp up quickly to fill a need for energy. Simple cycle units may be required to fill that need because coal-fired units are not as able to respond quickly to load changes given their baseload characteristics. An ISO-based analysis may be able to evaluate how this rule could change the operation of the state's units.

Emissions averaging periods will not guarantee electrical reliability. Emissions averaging periods may provide some degree of flexibility for the Load Serving Entities with generation to achieve the rule requirements. Electrical reliability may be enhanced by proper planning with plenty of lead time to plan, site, construct, and begin operations.

A safety valve is needed to ensure the reliability, safety, and security of the electrical system. As stated above, reliability events more frequently occur on a local level compared to a broader MISO level. It will be important to recognize and potentially have exception periods or offramps for local reliability events. Over time, through changing generation and transmission infrastructure, local reliability issues can be resolved.

- b. **Stranded Costs.** How does the proposed rule impact previous investments in emission controls, including type and magnitude of impact? Does the proposed rule include options to avoid stranded costs? If not, what could EPA change to address this? Is a certain level of stranded costs acceptable, and if so, what level?

This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

- c. **System- versus unit-based approach.** Please comment on the EPA's consideration of the electrical system as a whole in setting BSER (best system of emission reduction), and the EPA's interpretation of what is an 'adequately demonstrated' BSER. Would an 'inside the fence line' approach be more appropriate for goal setting and/or compliance? Why or why not? Please discuss any related legal concerns.

This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

II. SETTING STATE GOALS.

- a. **Baseline.** EPA set the BSER requirements based on a 2012 baseline.
- i. Does this baseline adequately credit, or conversely penalize, states and utilities for early action? If the latter, would a different year or type of baseline be more appropriate (e.g., use of the 3 highest of 5 years as used under CSAPR), and if so, why?

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WISCONSIN UTILITIES JOINT RESPONSE:

The EPA's goal-setting mechanism and use of a 2012 baseline for the purpose of setting state goals generally fails to recognize emission-reducing actions taken by states and utilities prior to 2012. An earlier alternate baseline period would allow some credit for early emission reductions. Wisconsin utilities believe that an alternative multi-year baseline such as 2010-2012, or earlier, could be developed; this would be consistent with the final goal, which is measured on a three-year rolling average basis (i.e., 2030-32, 2031-33, 2032-34, etc.). Furthermore, as discussed below, a three-year baseline period reduces the impact of abnormal conditions during any one particular year, such as low natural gas prices. To the extent that Wisconsin decides to develop its plan using the same methodology as EPA, the use of a single year could also skew the distribution of a state's goal between covered utilities, if for example, one utility had an unusually large number of outages during the single year.

- ii. Please comment on EPA's legal argument that they must use 2012 as a baseline.

WISCONSIN UTILITIES JOINT RESPONSE:

We are not aware of a legal requirement that the EPA must use 2012 as a baseline. EPA's explanation for why it chose 2012 is basically that this was the most recent year for which it had complete data. EPA's explanation can be found at page 4 of the Goal Computation Technical Support Document. As part of that explanation EPA also states the following: "The EPA also considered the possibility of using average fossil generation and emission rate values over a baseline period (e.g., 2009 – 2012), but determined that there would be little variation in results compared to a 2012 base year data set due to the rate-based nature of the goal. The state goal is an emission rate representing the deployment of BSER measures, and that deployment level is largely a function of technology-specific emission rate reduction capability and total natural gas combined cycle (NGCC) capacity installed to date. Since these two critical variables do not vary significantly when looking at a larger baseline period, the benefits of an expanded baseline period are dampened, and overshadowed by the complexities introduced through creating a "hypothetical" year." We take no position on whether EPA's statement is correct on a national level; however for Wisconsin, it is incorrect, since using 2012 only versus a 2010-2012 baseline period for Wisconsin results in an interim goal and a final 2030 goal that are 4% and 3% more stringent, respectively.

- iii. Does 2012 represent normal operating conditions?

WISCONSIN UTILITIES JOINT RESPONSE:

EPA developed their proposed rule using 2012 emissions and generation data. Based on a review of data from the U.S. Energy Information Administration (EIA), Wisconsin utilities do not believe 2012 is representative for establishing a baseline. Between 2005 and 2013, 2012 had the lowest natural gas prices, the greatest percentage of electric generation from natural gas and reflects the highest level of renewable generation and energy efficiency savings in Wisconsin. To address some of these concerns, it would be potentially a better approach to use a 3-year average baseline from 2010 – 2012.

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Natural Gas Citygate Price in Wisconsin

Year	Price
2005	\$8.57 / Mcf
2006	\$8.31 / Mcf
2007	\$8.13 / Mcf
2008	\$9.23 / Mcf
2009	\$6.30 / Mcf
2010	\$6.34 / Mcf
2011	\$6.00 / Mcf
2012	\$4.93 / Mcf
2013	\$5.35 / Mcf

Data Reference:

http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_SWI_m.htm

Percent of Electric Generation in Wisconsin from Natural Gas

Year	Percent
2005	10.3%
2006	8.7%
2007	10.2%
2008	8.3%
2009	9.1%
2010	8.5%
2011	9.9%
2012	18.1%
2013	12.6%

Data References:

<http://www.eia.gov/electricity/data/state/>
<http://www.eia.gov/electricity/data/eia923/>

Renewable Generation in Wisconsin

Year	Generation (MWh)
2010	2,473,956
2011	2,765,011
2012	3,223,178

Data Reference: <http://www.eia.gov/electricity/state/wisconsin/>

The renewable generation shown is only from wind and biomass renewable generation

Energy Efficiency in Wisconsin Demand Side Management (DSM)

Year	DSM (MWh)
2010	170,811
2011	587,155
2012	721,884

Data Reference: <http://www.eia.gov/electricity/data/eia861/>

- iv. Please provide your estimate of the amount of reduction due to actions between 2005 and 2012 that have not been included in the goal setting for our state, and the cost of those measures since 2005.

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This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

- b. **Building Blocks.** Is the building block approach to setting state goals appropriate? Do you favor an alternative approach? Should states be allowed to propose alternative building blocks based on technical and economic feasibility when preparing a plan? Did EPA use the best data for Wisconsin power plants and power sector (renewable energy and energy efficiency) programs? For each of the building blocks below, please discuss any alternative approaches EPA could take.

WISCONSIN UTILITIES JOINT RESPONSE:

Wisconsin utilities do not take a position in these comments on the legal basis for using measures beyond the power plant fence line (Blocks 2, 3 and 4) in determining the Best System of Emission Reduction. Legal questions aside, comments are provided below on the EPA's proposed approach.

The building block approach could be an appropriate way to set state goals if it meets the criteria for establishing the Best System of Emission Reduction (BSER) as required under Section 111 of the Clean Air Act. Section 111 provides that new source performance standards (NSPS) are to "reflect the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any non-air quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated."

From a technical perspective, there are aspects to each of the four building blocks that do not appear to be adequately demonstrated that are discussed below in the responses to Data Request Nos. II.b.i.-II.b.v. This includes the appropriateness of the assumptions underlying, and interaction among, the EPA's four BSER Building Blocks (power plant efficiency, increased natural gas dispatch, increased renewables and maintaining existing nuclear, and customer demand-side energy efficiency) in setting state intensity target goals. In addition, specific alternative approaches to remedy technical issues on the accuracy of the data used and related to the integrated application the EPA's proposed BSER blocks are also discussed below in the responses to Data Request Nos. II.b.i.-II.b.v.

- i. **Building Block 1: Heat Rate Improvements.** This block calls for an overall 6% improvement in the heat rate of coal units.
1. Can Wisconsin's coal plants achieve a 4% improvement in heat rate on average through best practices? Can they achieve 2% improvement through equipment upgrades? If not, by how much could WI coal plants improve their heat rate?

WISCONSIN UTILITIES JOINT RESPONSE:

Most utilities already implement ongoing heat rate improvement programs to capture the efficiency gains that EPA is assuming in the "best practices" portion of its Building Block 1 assumption, making a further 4% improvement unlikely. The ability to achieve a 2% improvement through equipment upgrades will vary from plant to plant. New plants, and

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particularly supercritical units such as Elm Road 1 and 2 and Weston 4, will likely not be able to improve their heat rates. In addition, plants that have already implemented equipment upgrades will have less opportunity to make further improvements.

In general, heat rate improvement opportunities are dependent on the original design of the unit – for example, a sub-critical pressure coal fired Rankine cycle plant will not be able to achieve the efficiency of a natural gas combined cycle plant because of inherent physical design considerations. Heat rate and the impact of heat rate improvements will vary along the load curve for each generation unit. Production at partial loads requires the majority of plant equipment to operate below design, or most efficient levels. Improvements that result in reducing heat rate at a high load point may result in marginal improvement or higher heat rates at a lower load point. Thus, the average heat rate improvement will be less than the heat rate reported at the high load point depending on the units' capacity factors.

Almost all forms of heat rate improvement will degrade over time, requiring ongoing maintenance efforts, such as a turbine overhaul, to return the unit to near design conditions. The heat rate improvement proposed by the EPA is an average improvement of 6%, and presumably includes all forms of heat rate improvements across the operating range and across the coal-fired fleet.

Opportunities to incorporate heat rate improvements resulting in a total of 6% or greater heat rate improvement at one load point are rare and are even less likely to carry that level of improvement across the load curve. A significant driver of average heat rate is the capacity factor of a unit, and is unlikely that an average heat rate improvement of 6% could be achieved and sustained on coal units that may be dispatched at reduced load points in the future in order to meet an emission reduction goal, or because of increased utilization of NGCC units (Building Block 2) or increased renewable generation (Building Block 3).

Any equipment-based heat rate improvements will experience degradation, requiring periodic overhauls to return efficiency to near original rates. Also, emission control systems that have been installed or are expected to be installed will reduce heat rates by approximately 1.5% to 1.75%.

2. What costs and timeframes would be needed to implement these heat rate improvements?

This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

3. Should the goal be based on what is achievable on average across the nation or be more focused regionally or within a state?

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WISCONSIN UTILITIES JOINT RESPONSE:

In general, heat rate improvement opportunities are dependent on the original design and current configuration of the unit; therefore, individual units should be compared to what is achievable for similar units. A case-by-case evaluation of the potential for, and cost-effectiveness of, heat rate improvement projects at individual electric generating units (EGUs) would be a more appropriate mechanism than the application of a uniform assumption as proposed by EPA.

4. Does EPA adequately consider possible interactions with Building Block 2 (increased dispatch of NGCC units) in determining what is achievable for heat rate improvements? For example, could decreased reliance on coal offset any benefit of efficiency upgrades because of reduced heat rate when a unit is run less or cycled more often, and by how much?

WISCONSIN UTILITIES JOINT RESPONSE:

The EPA considered the effects of each building block strictly on a stand-alone basis, rather than in an integrated manner. Increased dispatch of NGCC units will likely increase the cycling of coal units and push coal units to less efficient points on their load curves. The efficiency difference between low load and optimum efficiency (typically near full load) can be 1.5% or greater. These less efficient operational points will also have an impact on emission rates, not just for CO₂, but also on the operation of existing air pollution control equipment. These factors were not considered by the EPA when determining the level of heat rate improvement achievable under Building Block 1.

5. In calculating the goals, EPA assumes power plants can achieve all of the heat rate improvements by 2020. Is this feasible for Wisconsin units, or should EPA assume units can accomplish these improvements over a longer time period (e.g. by 2030)?

WISCONSIN UTILITIES JOINT RESPONSE:

It is unlikely that heat rate improvement projects could be completed by 2020, given that a state-only plan may not be approved until 2018 and a multi-state regional plan may not be approved until 2019. Longer time periods for compliance provide for more flexibility in project management and cost control. The projects that offer the greatest heat rate improvement potential are long lead time, multiple year projects. If many parties across the country are attempting to accomplish similar projects during the same time period, there may be cost increases or scheduling concerns due to supply chain bottlenecks in obtaining equipment. The EPA should allow states to determine a reasonable schedule for implementing heat rate improvement projects, or, similar to the treatment of renewables and energy efficiency, should assume a ramp-up period for the implementation of these projects.

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6. For utilities: please identify any heat rate improvements made since 2005 and provide specific cost and percentage change in heat rate for each unit.

This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

7. For utilities: identify any heat rate changes from emission control projects and provide specific cost and percentage change in heat rate for each unit. Discuss whether these changes are considered in the baseline.

This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

ii. Building Block 2: Increased Dispatch of NGCC Units.

1. Can the state's NGCC units operate at 70% capacity on a permanent basis? What are the equipment impacts and O&M costs of operating at 70%? What are the impacts on the electric system? Will decreasing the ability to quickly ramp up/down adversely affect intermittent renewables on the system?

WISCONSIN UTILITIES JOINT RESPONSE:

If NGCC units are redispached to a capacity factor of 70%, as assumed by the EPA, the role of these units will essentially shift from load-following, intermediate resources to baseload resources. However, the need for load-following resources will not be eliminated as a result of the rule. If anything, the need for load-following resources will increase due to the increase in renewable penetration assumed in Building Block 3. If NGCCs become baseload resources, the intermediate load role will likely be taken up by a combination of coal units operating at reduced loads and/or simple cycle peaking units operating at increased capacity factors. Both of these actions could result in higher emissions from coal units that would now be load-following and operating at a lower capacity and therefore have reduced efficiency (higher heat rates).

In regard to the question of whether decreasing the ability to quickly ramp NGCCs up or down adversely affects intermittent renewables on the system, simple cycle combustion turbines (CTs) could supplant NGCCs for providing quick ramp up capability when needed. Simple cycle CTs are less efficient and more expensive to run than NGCCs, but if located in the appropriate electrical location they should be able to provide ramping capability. In addition, MISO has required all intermittent resources added to the system since 2011 to become dispatchable intermittent resources, which means that intermittent resources are expected to respond to dispatch signals provided by MISO and move in the direction (up or down) as provided by MISO.

2. Is this building block likely to create electrical reliability issues if NGCC capacity isn't available for increased dispatch upon demand? Would

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operating NGCC units at 70% capacity affect utilities' ability to maintain the required 15% reserve capacity for reliability purposes?

WISCONSIN UTILITIES JOINT RESPONSE:

As described in response to II.b.ii.1. immediately above, simple cycle CTs may be able to help support meeting the electric reliability functions currently being provided by NGCCs -- that is, provided firm interstate pipeline capacity is available and that increased operation levels remain within the limits of their air and other permits.

Operating NGCC units at 70% capacity should not affect utilities' ability to maintain the required 15% reserve capacity for reliability purposes. This is better understood in the context of annual planning reserve margins versus hourly operating reserve margins. Under the MISO Resource Adequacy construct, a Load Serving Entity must demonstrate before the June 1 start of each planning year that it controls sufficient generating capacity to provide for the annual peak demand of its customers plus a planning reserve margin. NGCCs would be part of the generating capacity necessary to meet this capacity. But whether it operates at a 0%, 70%, or 100% annual capacity factor is irrelevant to whether utilities would be able to maintain a required 15% annual planning reserve margin. In terms of short-term (hourly and less) operating reserves, the ability to meet those needs will be dependent on the entire portfolio of MISO generating units whose electrical output is deliverable to serve Wisconsin's load in any given operating interval.

3. Was EPA's determination that existing natural gas infrastructure could support such an expansion adequate? If not, how much additional capacity is needed and is firm gas available? Please comment on natural gas storage and hedging impacts.

WISCONSIN UTILITIES JOINT RESPONSE:

EPA appears to have conducted limited analysis of the ability of the existing natural gas pipeline system to support increased utilization of NGCCs. Regulatory Impact Analysis (p 3-26) projects a 4-8% increase in pipeline capacity by 2020, suggesting existing infrastructure is not adequate. Based on 2012 data, redispatching Wisconsin NGCCs to 70% would result in an increase in statewide gas consumption of approximately 24%. It is difficult to say whether existing infrastructure is adequate to support this level of increased consumption although some potential concerns are noted below.

Infrastructure: Interstate pipeline capacity and the infrastructure to deliver that capacity are all based on peak day needs. This is true whether the particular unit has a 1% annual capacity factor or 70% annual capacity factor. If the unit is needed to serve peak winter need using natural gas as a fuel, firm pipeline capacity and the infrastructure necessary to support it is required. This is true even if the unit runs very infrequently.

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A significant impact on pipeline infrastructure will come if the rule changes result in the need for simple cycle CTs to become firm winter resources. Currently, most are generally not needed to meet peak winter demand, which is historically significantly lower than peak summer demand.

Storage and Hedging: If its simple cycle CTs start to be relied on significantly more because of the rule changes, then additional storage may be necessary. This is especially true if the need grows in the winter. Currently, storage is available for purchase at a reasonable price, but the pipeline transportation to deliver it is not available without very significant costs.

Wisconsin is 'geologically challenged' in that it does not have suitable geologic formations for natural gas storage fields, and is heavily reliant on storage fields in lower Michigan, and on the interstate pipeline necessary to move the gas from storage to Wisconsin when needed. It is likely that as new NGCCs come on-line, those new units will be competing for storage and transportation capacity. It is not clear that the EPA analysis has taken note of these types of concerns about the availability of storage and associated interstate delivery capacity. In contrast, the MISO RTO has begun studying these issues and may be better able to forecast the availability of these assets under the new rules.

Hedging policies and practices would need to be carefully evaluated over time as gas cost would make up an increasingly larger percentage of the total fuel portfolio.

4. EPA suggests that states could drive these changes in dispatch via either economic mechanisms (e.g., a carbon price on electricity generation) or via emissions limits in permits. Which mechanism do you think would be most effective? What are the strengths and weaknesses of each mechanism?

WISCONSIN UTILITIES JOINT RESPONSE:

Wisconsin utilities participate in MISO's energy and operating reserves market. The MISO market is designed to commit and dispatch the most cost-effective deliverable generating units to provide energy to customers. This wholesale market has proven to be very effective in providing low cost energy to Wisconsin utility customers. In view of this, Wisconsin utilities support the continued use of economic dispatch to achieve the desired CO₂ emissions reductions.

An economic dispatch solution is preferable to an emissions limit based on permits for each of the units because use of economic dispatch provides the opportunity for MISO to commit and dispatch the most cost-effective deliverable unit while also considering emissions requirements. Putting permit limits on individual units could prevent this from occurring by making a more cost-effective unit unavailable for a part of the year due to reaching its permitted emissions limit, even though from a total cost perspective it is

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more cost-effective than other units that would not have reached their individual limits up to that point in time.

5. In calculating the goals, EPA assumes power plants can increase NGCC dispatch to 70% by 2020. Can Wisconsin units fully ramp up dispatch by 2020, or should EPA allow units to shift dispatch over a longer time period?

WISCONSIN UTILITIES JOINT RESPONSE:

It is unclear that NGCC redispatch could be fully implemented by 2020 in all cases, particularly if air permit, other operational amendments, or upgrades to natural gas pipelines and electric transmission facilities are required to accommodate increased NGCC operation. The EPA should allow states to determine what level of redispatch is feasible and the reasonable schedule for implementing NGCC redispatch. Alternately, similar to the treatment of renewables and energy efficiency, the EPA should assume a ramp-up period for implementing redispatch.

Additional Building Block 2 Considerations:

- The proposed use of NGCC redispatch in goal setting results in more stringent goals for states in which coal units have been replaced by NGCC units than for states in which NGCC units have not been added. The EPA should consider excluding from Building Block 2 those NGCCs that were installed as repowering projects at existing coal unit sites.
- In its calculation of the energy that would be produced from operation of NGCCs at a capacity factor of 70%, the EPA used the nameplate rating of the NGCCs, rather than their annual average net capacity. The average of the summer and winter net capacity of Wisconsin's NGCCs, determined using the same EIA-860 database that the EPA used to determine nameplate rating, is approximately 9% lower than the total nameplate rating used by the EPA in its calculation. Using this value in the goal-setting calculation increases Wisconsin's interim and final goals by approximately 3%.
- In its goal-setting calculation, the EPA assumes that the CO₂ emission rate of the redispatched NGCCs will be equal to their 2012 emission rate. All Wisconsin NGCC units have duct-fired peaking capacity which generally comprises at least 10%-20% of the total capacity of the units. Since the duct-fired capacity has a significantly higher incremental heat rate (and emission rate) than the unfired heat rate, this capacity has historically been operated fairly infrequently. However, in order to achieve a capacity factor of 70%, additional duct firing will likely be required at some units. As a result, the average emission rate of the NGCC units would likely be higher under the 70% capacity factor scenario than it was in 2012.

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iii. Building Block 3a: Dispatch of At-Risk Nuclear Capacity.

1. Is it appropriate and meaningful for EPA to count 5.8% of Point Beach’s generation as “at risk”? Is this methodology reasonable, and if not, is there another approach you would propose to consider nuclear facilities? How would this approach impact a non-regulated, merchant-owned plant like Kewaunee?

WISCONSIN UTILITIES JOINT RESPONSE:

The EPA’s proposed “at-risk” nuclear provision penalizes states with existing nuclear capacity by assigning them more stringent goals than would be the case if they didn’t have such generation. The EPA should eliminate the at-risk nuclear provision from the goal-setting calculation, or, at a minimum, should apply the provision only to nuclear units that are truly at risk. A non-regulated merchant plant could be considered at-risk, while a utility-owned plant in a rate-regulated state or a plant with a long-term power purchase agreement, such as Point Beach, would not.

2. How does this effort to keep “at-risk” nuclear plants open interact with licensing requirements which may require the plants to close at a certain date? For example, Point Beach’s units are licensed through 2030 and 2033.

WISCONSIN UTILITIES JOINT RESPONSE:

Even if a nuclear unit is prevented from shutting down prematurely, it will still be required to shut down upon expiration of its operating license, and the state in which the unit is located will have to add additional carbon-free generation or implement other emission reduction measures in order to maintain emissions relative to the state’s goal. If the at-risk nuclear provision is retained in the final goal-setting calculation, the EPA should allow states’ goals to be adjusted upon expiration of nuclear plant operating licenses.

3. Should EPA include other existing nuclear generation (e.g., the remaining 94.2% of Point Beach’s generation) in setting the goal? If so, how?

WISCONSIN UTILITIES JOINT RESPONSE:

Rather than penalizing states in which nuclear plants shut down, the rule should provide an incentive for nuclear units to continue to operate, and, if possible, to increase their output or capacity factor. Excluding existing nuclear from the goal-setting calculation, but allowing states to take credit for a portion of their nuclear generation for compliance purposes, would provide such an incentive. In addition, the EPA should recognize early action taken to increase nuclear plant output, such as the 2011 extended power uprate at Point Beach.

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iv. Building Block 3b: Increased Generation of Renewable Energy.

1. Is it possible for Wisconsin to expand renewable generation to 11% of total generation with only in-state resources, and if so, what is the estimated cost of doing so? Is this achievable using a combination of in-state and out-of-state renewable energy purchases (which EPA intends to allow), and what are the likely costs of complying? How close are utilities to reaching the 11% goal if the requirement was for in-state resources?

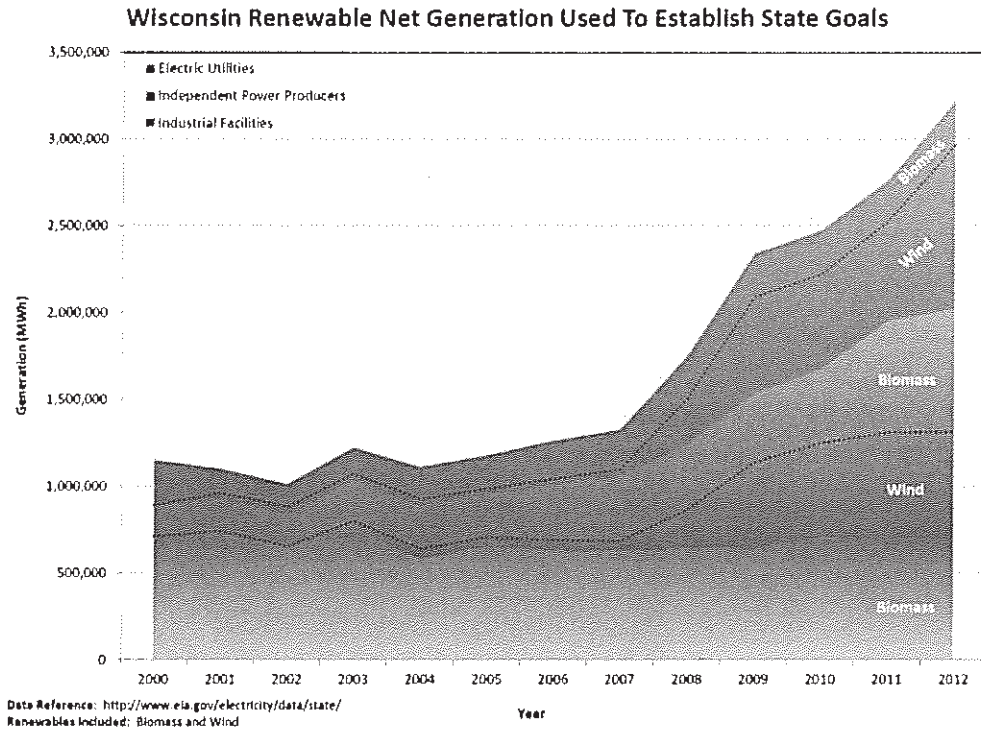
WISCONSIN UTILITIES JOINT RESPONSE:

Wisconsin utilities continue to support renewable resources, but are cautious regarding the level of expansion that would be needed for EPA's proposed rule.

Wisconsin's ability to meet the 11% renewable generation goal could be greatly impacted by the composition and size of its 2012 renewable base. A large portion of the renewable generation assumed by EPA in the proposed rule for Wisconsin was generated by non-utilities, such as independent power producers (IPPs), combined heat and power (CHP), and other industrial facilities, which may not ultimately be included in the State compliance plan. The Energy Information Administration (the source of EPA's data) reports Wisconsin's total in-state non-hydro renewable generation as 3,223,178 Megawatt Hours (MWhs) in 2012, of which 1,665,600 MWhs (52%) are from biomass resources. The definition of biomass under the proposed rules is up for debate, so there is no guarantee that these MWhs would be considered as generated from an eligible resource. In addition, approximately 640,000 MWhs or 32% (of the ~1.6 Million total) of biomass generation was from behind the meter facilities owned by industrial customers. All are tied to older paper pulping facilities and any reduction from those facilities would need to be replaced by new sources, making the interim and final reduction goals that much harder to meet.

Renewable generation from these types of behind the meter facilities is not growing. The following figure shows the breakdown in renewable generation by ownership based on EIA data from 2000 – 2012. Regardless of ownership, EPA applies a six percent growth factor to all Wisconsin renewables from 2017 onward.

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On the other hand, EPA did not include electricity from small (<1 MW) distributed generation (DG) in the baseline calculation. Wisconsin utilities do not have an efficient way of determining statewide annual DG generation totals. The Public Service Commission could probably estimate DG's contribution toward the goal using data from the annual renewable portfolio standard (RPS) reporting system.

In calculating Wisconsin's proposed emissions goal, EPA projects a more than doubling of in-state renewable generation from 3.2 million MWhs in 2012 to 6.8 million MWhs by 2029. To help put that in perspective, Wisconsin had ~639 MW of utility scale wind generation that produced a little over 1.5 million MWhs in 2012. If Wisconsin chose to meet all of EPA's projected renewable energy goals (2029 goal of 6.8 million versus 2012 3.2 million MWh) with wind at an average capacity factor of 28%, it would need to nearly triple Wisconsin's wind generation capacity. The feasibility of siting and integrating that much wind into Wisconsin's electric transmission/distribution system would be difficult to estimate with any certainty. Estimating the costs of complying with a combination of in-state and out-of-state renewable resources would be difficult, as cost of transmission and availability of sites are unknown. In summary, reaching the 11% renewable energy goal with in-state resources could be challenging both technically and economically.

2. Is it appropriate for EPA to exclude out-of-state renewables in setting a state's goal? If it is not appropriate, can you suggest a mechanism by which

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EPA could account for the many different contracts for renewable electricity purchases across state lines?

WISCONSIN UTILITIES JOINT RESPONSE:

There are a number of problems with the baseline renewables used by the EPA in its goal-setting calculation. As noted, the EPA excluded out-of-state renewables. This is particularly a problem for Wisconsin, since a significant portion of the renewable portfolios of the state’s utilities are located in other states. In addition, some states have better renewable availability - for example, both Iowa and Minnesota have high wind speeds on average. EPA should exclude existing renewables from its goal-setting calculation. In order to recognize early action, states should be allowed to take credit for a portion of their existing renewables for compliance purposes.

3. Is it appropriate for EPA to determine the target and growth rate on a regional basis? Are there other ways (state-specific, nationally, based on technical renewable generation potentials) that would be better?

WISCONSIN UTILITIES JOINT RESPONSE:

EPA’s determination of regions for renewable energy goal setting was arbitrary, using RTO & NERC regions as a general guide. EPA used the average RPS requirement of the five states with an RPS requirement in their nine-state “North Central Region” to arrive at a 15% “Effective RE level”. EPA concludes that states in the same region have similar renewable energy potential, as measured by existing renewable energy standards adopted by some states in the region. This is a false conclusion as Wisconsin does not have the same wind resources as those states to the West and has faced opposition to wind development in some areas.

Therefore, the EPA’s regional basis is not the best approach. At a minimum, the EPA’s proposed approach should factor a zero into the regional calculation for states without an RPS and also factor in an estimated percentage for states with a renewable capacity mandate (such as Iowa).

State	2020 Effective Renewable Energy Level (%)
Illinois	16%
Indiana	
Iowa	
Michigan	10%
Minnesota	30%
Missouri	10%
North Dakota	
South Dakota	
Wisconsin	10%

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4. Is the use of state Renewable Portfolio Standard targets appropriate for a regional goal?

WISCONSIN UTILITIES JOINT RESPONSE:

The proposed use of regional Renewable Portfolio Standards as the basis for setting renewable goals may or may not be appropriate depending on EPA's final methodology. As it was applied in the proposed rule, this results in more stringent goals for states in regions where some states have been more aggressive in setting RPS than for states in regions that have been less aggressive. There are states with significant renewable potential without an RPS. In other cases, a state may have a significantly higher RPS than its neighbors with similar renewable potential. In either case, it is likely that some states have more renewable potential than their current RPS, even for states that have not yet met their self-imposed targets.

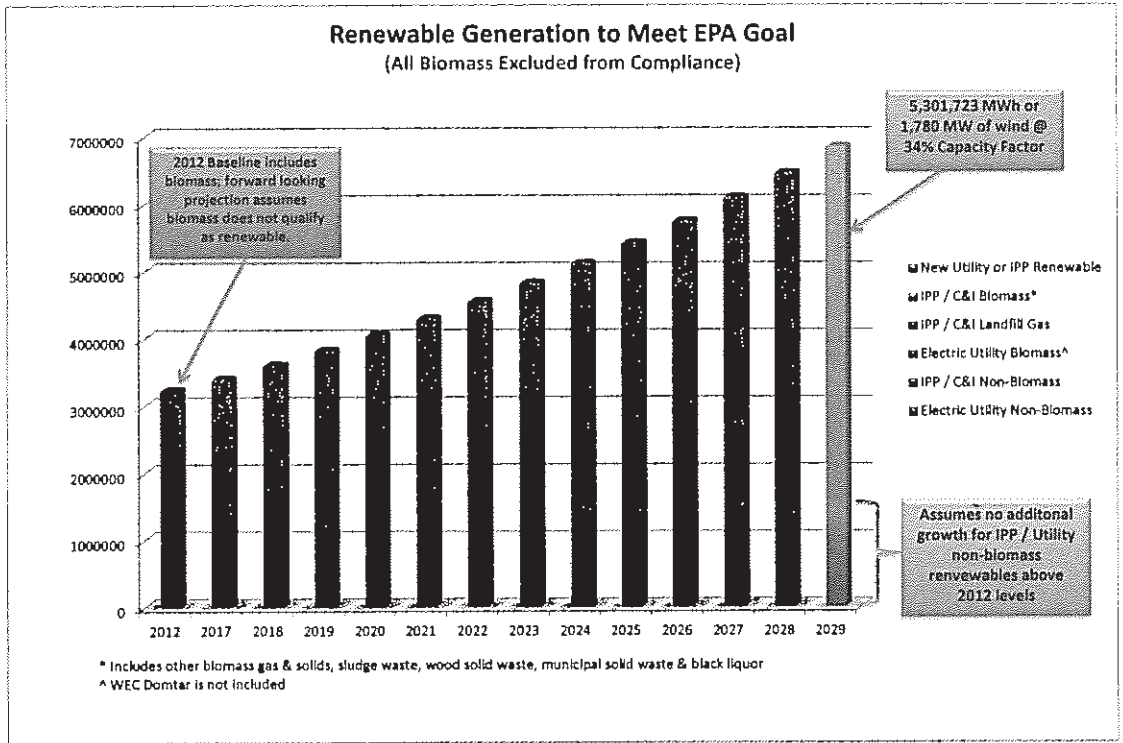
5. Is it appropriate for EPA to apply a growth rate that is a percent of existing capacity?

WISCONSIN UTILITIES JOINT RESPONSE:

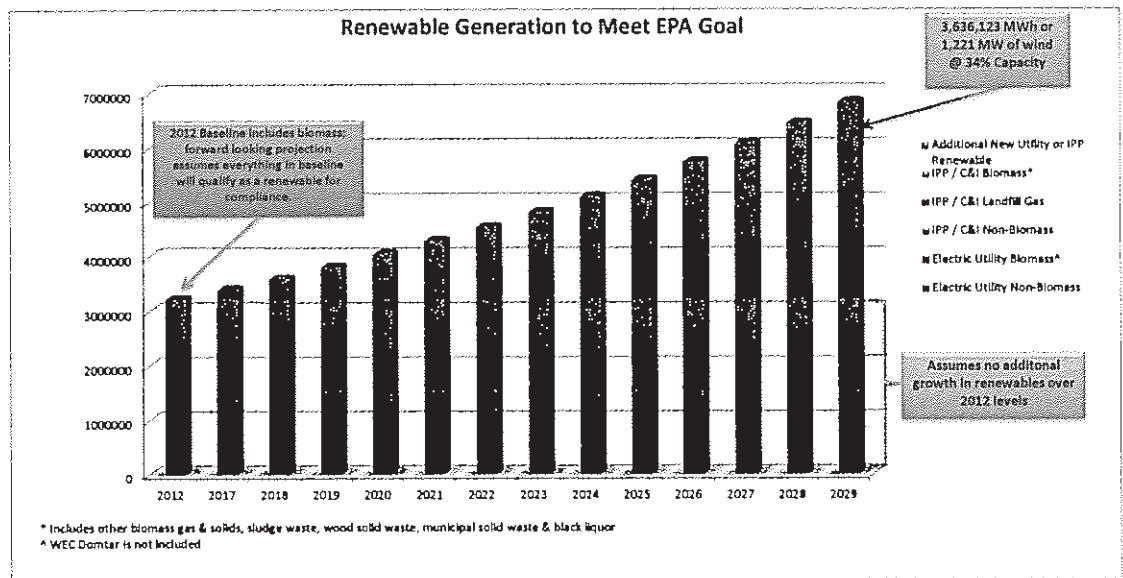
As proposed, EPA's growth rate approach is too generic. The growth rate is simply the result of a calculation designed to get the region as a whole to its prescribed renewable energy target by 2029. The annual growth rate (6%) is then applied to the State's 2012 renewable levels beginning in 2017. However, this growth rate will be higher for Wisconsin utilities because of the large amount of behind the meter renewables included in Wisconsin's 2012 baseline that is likely to remain static or decline. This translates into an annual growth rate for Wisconsin utilities that is significantly higher than 6%. There are several additional problems with this approach including but not limited to: the ability to integrate new renewable generation into transmission and distribution systems, the availability of renewable generation sources due to supply/demand limitations, and critical path limitations related to obtaining regulatory approvals. Therefore, the growth rate for renewables needs to be assessed on a state-by-state basis.

The following charts are meant to illustrate how uncertainty, as to what would be included in Wisconsin's baseline, could impact its ability to reach EPA's proposed renewable energy goals. For example in CHART-A, the 2012 EPA-established baseline included biomass facilities from all sectors. It demonstrates the needed growth rate (demonstrated as new wind generation) should all biomass be excluded. While the exclusion of all biomass for compliance purposes is unlikely, it is uncertain how biomass will be treated in the compliance phase. CHART-B demonstrates the needed growth rate should all biomass included in the baseline be allowed for compliance.

CHART A



CHARTB



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6. EPA describes an alternative renewable energy approach based on technical and market potential for renewable energy within different states. Do you believe this is a better approach? Do you agree with how they calculated renewable energy potentials? Please discuss why or why not. What would this mean for Wisconsin, specifically? Would an approach that is based on potential within in a state rather than RPS goals consider current or future out-of-state obligations?

WISCONSIN UTILITIES JOINT RESPONSE:

It does not appear that EPA's proposed alternative renewable energy approach is a better one for Wisconsin. EPA's "Alternative Renewable Energy Approach" uses a top-down technical potential process in combination with the Integrated Planning Model to inform state renewable goal targets. The net result for Wisconsin appears to be a ~600,000 MWh increase in renewable energy added to its renewable energy target. This approach fails to consider the same limiting factors as the regional RPS formula: the ability to integrate new renewable generation into transmission and distribution systems, the availability of renewable generation sources due to supply/demand limitations, and critical path limitations related to obtaining regulatory approvals.

Therefore, while on the surface the renewable energy alternative approach would appear to be based in solid facts and data, the underlying methodology to calculate RE targets is ultimately based on numerous assumptions and complex models to produce the renewable targets.

v. Building Block 4: Increased Energy Efficiency.

1. Is it achievable for Wisconsin to sustain 1.5% incremental savings per year through 2030 and beyond? If so, should it be done through the Focus on Energy program or via some other means? If 1.5% incremental savings is not achievable, is there a different target that would be more appropriate?

WISCONSIN UTILITIES JOINT RESPONSE:

It is not clear whether Wisconsin could achieve and then sustain 1.5% annual incremental savings through 2030 and beyond. The important factors to consider include whether Wisconsin will have sufficient market potential to maintain the savings at the proposed rate because of the state's long-term history and customer participation in energy efficiency. The easier-to-implement and more cost-effective opportunities as well as many lower incremental cost technologies and programs have been implemented and those savings have been achieved. Additionally, achieving sustained energy efficiency savings at this proposed level would require substantial investments in programs and result in significant cost implications for the residents and businesses in the state.

The 2012 Focus on Energy Annual Report registered 649,848 MWh of energy savings, which was approximately 1.0% of total energy sales in

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Wisconsin. As of 2012, Wisconsin was at 0.97% incremental savings as a percentage of retail sales. The proposed Clean Power Plan projects that beginning in 2017, Wisconsin's incremental savings percentage will need to start at 1.05% and increase every year by 0.2% until Wisconsin reaches EPA's proposed 1.5% incremental savings goal (anticipated to be reached in 2020) and then maintain that level of savings indefinitely.

Focus on Energy could be a component of the approach. However, additional components would likely be needed to support the proposed aggressive expectations of EPA's proposed plan, such as credit for energy building codes and state appliance standards and the addition of supplementary utility-administered programs. Furthermore, an additional amount needs to be accounted for what is normally factored into utility load forecasting.

2. Is the growth rate of 0.2% of sales per year appropriate? If not, what is the appropriate growth rate?

WISCONSIN UTILITIES JOINT RESPONSE:

The "pace of improvement" rate of 0.2% of savings per year may not be appropriate and there are many factors to consider at the state level. EPA's approach should defer to the states to determine what is a feasible energy efficiency target and reasonable pace of improvement to that target. Short of that, EPA's proposed approach needs to include further analysis and consideration for states like Wisconsin that have a long-standing and progressive energy efficiency policy and relatively high participation in energy efficiency programs.

3. Is EPA's choice of measure lifetime (used to define the duration of energy savings) for the goal appropriate?

WISCONSIN UTILITIES JOINT RESPONSE:

The EPA's choice of measure lifetime is too generic and is not appropriate. EPA's approach should defer to the states to determine what is appropriate. Wisconsin utilities believe that the Evaluation Working Group for Focus on Energy should provide further analysis and comment on this issue to the EPA.

c. Alternative Approaches Discussed by EPA.

- i. EPA presents alternate targets for each building block that are less stringent and have shorter compliance periods. Please comment on each of these targets and whether you believe they are more or less appropriate than those proposed by EPA.

WISCONSIN UTILITIES JOINT RESPONSE:

The EPA's proposed and alternative targets for each block are provided below. For technical reasons discussed in the response to question II.b., the less stringent alternative targets are not appropriate due to issues underlying the technical assumptions for each building block. In addition, the earlier 2025 date does not

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resolve potential concerns related to having a sufficient timeframe for achieving compliance, because there is still an interim goal that starts in 2020. The proposal’s multi-year averaging periods are helpful, but overall a longer and smoother glide-path is needed to prepare for compliance including permitting, regulatory approvals, project development, and in some cases construction. EPA’s proposal does not adequately factor the schedule required to deploy additional energy resources and infrastructure (e.g., additional renewables, natural gas pipelines, transmission). In particular, the timing of the interim goal that commences in 2020 could pose compliance challenges relative to EPA approval of State 111(d) Plans, which would be no sooner than 2017 (earliest for state-only) and possibly as late as 2019 (for a multi-state regional plan).

EPA’s Clean Power Plan Targets	Proposed	Alternative
Date to Achieve Final Goal	2030	2025
Wisconsin Final Goal	1,203	1,380
Interim Goal Period	2020-2029	2020-2024
Wisconsin Interim Goal	1,281	1,417
Block 1 - Heat Rate Improvement	6%	4%
Block 2 - Redispatch Natural Gas	70% NGCC capacity factor	65% NGCC capacity factor
Block 3 – Nuclear	~5.8% at risk	~5.8% at risk
Block 3 - Renewables*	13% by start of 2030 and thereafter	9.4% by start of 2025 and thereafter
Block 4 - Energy Efficiency*	10.7% cumulative savings by start of 2030 and thereafter (1.5% annually)	5.2% cumulative savings by start of 2025 and thereafter (1.0% annually)
*The above Renewable values and Energy Efficiency saving rates are nationwide averages		

- ii. EPA also discusses a different approach to setting the goals based on Building Block 1 (heat rate improvements) coupled with reduced utilization of fossil EGUs. Do you believe this is a better approach? Please discuss why or why not.

WISCONSIN UTILITIES JOINT RESPONSE:

Wisconsin utilities do not have sufficient information to discern if this is a better approach. The EPA’s limited discussion of this approach for determining BSER (79 Fed. Reg., pp. 34889-34890) simply provides an alternate legal justification for the EPA proposed state goals, but does not otherwise affect the stringency or timing of the proposed goals.

III. COMPLIANCE WITH THE RULE.

- a. **Compliance Flexibility.** Do you have any concerns with the compliance flexibility proposed in the rule? Are there other flexibilities that should be considered (e.g. use of CHP, non-electric energy efficiency, etc.)? If EPA allowed too much flexibility, how could they narrow the scope of what is allowed for compliance?

WISCONSIN UTILITIES JOINT RESPONSE:

Wisconsin utilities support broad compliance flexibility. Wisconsin utilities also recommend that EPA’s approach allow including additional compliance options both within the electric

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sector (CHP, distributed generation, and transmission and distribution (T&D) efficiency improvements) and outside the electric sector (offset projects such as natural gas energy efficiency, methane reduction, carbon sequestration, carbon recycling, and greenhouse gas reduction in forestry or agriculture). In addition, there are other flexibilities that could be considered that were described in the previously provided Edison Electric Institute (EEI) white paper titled "Non-BSER Compliance Options". Any actions to reduce greenhouse gas emissions should be available to include as long as a State can put in place protocols to verify and enforce these additional compliance measures coupled with implementing appropriate accounting and tracking methodologies.

- b. **Responsible Parties.** EPA says this rule should allow states to comply via either an emission limit approach (in which limits are applied to units which may or may not be able to purchase and trade credits) or a portfolio approach (which may combine emission limits with other enforceable measures and may be utility-driven or state-driven). Does anything in the rule as written preclude the use of any of these approaches? Which parties (utilities, states, etc.) should bear the obligation for the different aspects of compliance?

WISCONSIN UTILITIES JOINT RESPONSE:

EPA included the following compliance pathways:

- Rate-based CO₂ emission limit applied to affected EGUs
- Mass-based CO₂ emission limit applied to affected EGUs
- State-driven Portfolio Approach (rate or mass)
- Utility-driven Portfolio Approach (rate or mass)

Wisconsin utilities do not believe that any of these pathways should be precluded as a preliminary matter. While the initial two options have more precedent under the Clean Air Act and there may be some questions regarding how to address federal enforcement for the portfolio approaches, Wisconsin utilities prefer leaving all options available in the final rule. The EEI white papers provided also discuss some of the complexities related to federal enforceability. More broadly, Wisconsin utilities believe that utilities should only bear the obligation for those aspects of compliance over which they have control.

- c. **Rate and mass based standards.**
- i. Does the rule structure adequately allow for use of either a rate or mass based standard? If not, how could the rule be modified to do so?

WISCONSIN UTILITIES JOINT RESPONSE:

The proposed rule clearly allows for a conversion from an emission rate-based approach to a mass-based approach. The primary concern currently is the lack of guidance on how an EPA-approvable mass cap should be developed.

- ii. EPA does not prescribe a methodology for determining mass based limits. What factors should be considered in establishing a mass cap?

WISCONSIN UTILITIES JOINT RESPONSE:

In order to alleviate the concerns and uncertainties associated with conversion from a CO₂ rate to a CO₂ mass limit, the EPA should clarify exactly how the conversion

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should be done. The mass-based approach should not be more stringent than an emission rate approach.

- iii. EPA presumes that states may establish mass caps when developing a plan. Should these values be fixed or be adjustable going into the future?

WISCONSIN UTILITIES JOINT RESPONSE:

It would be extremely difficult for a state to accurately project generation by affected EGUs out to 2030 in order to establish mass caps, as is contemplated by the proposed rule. In order to make a mass-based approach an attractive alternative to a rate-based approach, the EPA should allow states to adjust their mass caps based on changes that occur after the projection is originally made due to justifiable circumstances such as reliability issues or economic hardship.

- iv. Should EPA determine mass caps for each state? Should states be required to use EPA's determined limit or allowed to calculate their own mass cap (subject to EPA approval)?

WISCONSIN UTILITIES JOINT RESPONSE:

Wisconsin utilities conditionally support EPA developing presumptive mass caps because it would reduce uncertainty surrounding the initial development of mass caps by states. EPA should clearly articulate how the mass caps were developed and provide an opportunity for public notice and comment before the final rule is released. In addition, states should have the opportunity to develop their own mass caps to replace the presumptive EPA mass caps if they have reasonable justification to do so.

- v. Would it be appropriate and feasible for Wisconsin utilities to adopt different approaches such that one utility could comply with a mass-based standard while another meets rate based goal?

WISCONSIN UTILITIES JOINT RESPONSE:

The idea of having different compliance approaches for different utilities in the State would seem to add unnecessary complexity to the state approach, particularly given that several utilities share joint ownership of generation units within the State. However, it does not mean that this approach is not feasible.

- d. **Use of new facilities for compliance.** EPA states that it intends to allow new units (such as new NGCC plants) to count towards compliance with the existing source rule. Do you see any potential issues with regulating these plants under both 111(b) and 111(d)?

WISCONSIN UTILITIES JOINT RESPONSE:

Wisconsin utilities take no position in these comments on the potential legal issues involved in regulating plants under both 111(b) and 111(d) under a rate-based approach. It could be advantageous for a state like Wisconsin to include new NGCC plants in its 111(d) compliance determination, since such plants have an emission rate that is lower than the state's goal and the addition of new NGCC units may be a result of the retirement of other fossil fuel units. Wisconsin should ask EPA to clarify that under a mass-based approach, new 111(b)

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NGCC units are not subject to the 111(d) cap.

- e. **Expansion of renewables.** For utilities: how much additional renewable generation and what type do you anticipate using to comply with this rule? Are you likely to build this capacity in state or out-of-state? Please provide any costs estimates, if you have them, for this additional capacity, whether it is generation or transmission costs.

This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

- f. **Interstate effects - RE.** EPA states that renewable electricity purchased from out-of-state could count towards compliance if the states ensure that this electricity will not be double counted. Is this appropriate? Can you suggest any way to structure the program to ensure that such electricity is not double-counted?

WISCONSIN UTILITIES JOINT RESPONSE:

If renewable electricity purchased from out-of-state is counted towards compliance then avoiding double counting and tracking is appropriate. The use of a renewable energy credits tracking system – such as the Midwest Renewable Energy Tracking System (M-RETS) – could provide a mechanism to avoid double-counting. Avoidance of double counting is a key component in M-RETS, and M-RETS requires attestation forms and Administrator communication with other tracking systems to minimize risk of double-counting.

Greater clarity will be needed, though, regarding what would constitute double-counting under the Clean Power Plan. Since renewable energy may be used both to comply with RPS and Clean Power Plan requirements, the ability to track renewable and carbon attributes separately for use in different regulatory programs should be considered.

- g. **Interstate effects – EE.** EPA proposed to scale down energy efficiency savings for states that are net importers of electricity and took comment on whether they should scale up EE savings for net exporter states to account for the cross-border savings from in-state programs. Are these each appropriate approaches? Is there a better way to handle this issue?

WISCONSIN UTILITIES JOINT RESPONSE:

EPA's broader approach for energy efficiency should defer to the states to determine what is a feasible energy efficiency target and reasonable pace of improvement to that target. States are in a better position to provide recommendations on the appropriate treatment of savings related to net import or net export issues.

- h. **Trading program.**
 - i. EPA allows states or regions to create plans based on emissions averaging and trading. Is this appropriate?

WISCONSIN UTILITIES JOINT RESPONSE:

Complying over a larger region has the potential for lowering total cost of compliance, and should be encouraged by the EPA.

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- ii. Should EPA provide a default national trading program that states or sources can opt into for compliance purposes?

WISCONSIN UTILITIES JOINT RESPONSE:

The EPA could assist the states by taking actions such as establishing a standard for credits that can be used for compliance purposes and by establishing a credit tracking system.

- iii. Are there types of credits or trading programs that may be barred from the rule as proposed?

WISCONSIN UTILITIES JOINT RESPONSE:

EPA's final rules should provide as much flexibility as possible and should not exclude certain types of credits or trading programs that would be barred from the rule as proposed.

- iv. Would it be appropriate to have separate systems for trading pounds of CO₂ and avoided megawatt-hours of generation?

WISCONSIN UTILITIES JOINT RESPONSE:

To implement rate-based programs with trading, it would be appropriate to have trading systems for both emissions (pounds or tons of CO₂) and energy (megawatt-hours) from renewables and demand-side savings. For a mass-based program, it would be appropriate to have trading systems for emissions (pounds or tons of CO₂).

- v. Should a trading program be state-wide, region-wide, or nation-wide?

WISCONSIN UTILITIES JOINT RESPONSE:

If implemented, a trading program should cover as wide an area as possible, preferably nationwide.

- vi. Who should manage emission trading systems?

WISCONSIN UTILITIES JOINT RESPONSE:

The EPA or some other agreed upon entity could manage trading systems in order to achieve greater efficiency. The EPA should provide an optional credit tracking system for emissions and energy that can be utilized by states.

- i. **Displacement of generation/emissions.** EPA does not specify a methodology for states to use in determining what kind of generation (and how large its associated CO₂ emissions) would be displaced by renewable electricity and energy efficiency measures. What would be the best way to determine this?

WISCONSIN UTILITIES JOINT RESPONSE:

When the EPA determined states' emission rate goals, it used a calculation in which the megawatt-hours of renewable generation and the megawatt-hours of savings from energy efficiency were added to the denominator of the goal-setting calculation. While an alternative method of accounting for renewables and efficiency would be to subtract

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avoided emissions from the numerator of the equation, such a method would be significantly more complicated, and would likely be unworkable in practice. In addition, it would be improper to use a different method to demonstrate compliance with a state's goal than was used to establish the goal in the first place.

- j. **Federal enforceability of compliance measures.** If a program is explicitly used as a compliance measure under this program, EPA has stated that that program must become federally enforceable. Do you foresee any issues with having existing state programs (such as the RPS and Focus on Energy) become federally enforceable?

This is not a Wisconsin utilities joint response question. Please refer to individually filed comments for this answer.

- k. **Regional approaches to compliance.** Do you have any thoughts on whether Wisconsin should participate in a regional compliance approach? What type of regional approach would be most appropriate? Which other states would you like to see as partners?

WISCONSIN UTILITIES JOINT RESPONSE:

Depending on the construct of a multi-state or regional approach, this could reduce the cost of compliance compared to a state-only approach. The EPA has suggested a regional approach under which states' individual rate-based goals would be replaced by a single regional goal that would be equal to the weighted average of the state goals. It seems unlikely that such an approach would receive support from states whose goals are less stringent than the regional weighted average. A regional approach more likely to secure support would allow states to retain their individual goals, but would provide for credit trading between the states as a compliance measure.

- i. **Treatment of biomass.** EPA stated that they assume states will use biomass for compliance with the regulation, but also referred to their not-yet-released biomass accounting framework when discussing how biomass would be treated under this rule. How should biomass be treated? Should different types of biomass-based generation be treated differently? For example, should ag digesters receive credit for methane reduction as well as for displacing carbon emitting generation?

WISCONSIN UTILITIES JOINT RESPONSE:

As noted earlier, the EPA assumed that biomass is carbon-neutral for the purpose of setting state goals, and should treat it as carbon-neutral for the purpose of demonstrating compliance. Measures that reduce CO₂ (or other GHG) emissions from other sectors should be allowed as compliance measures. It is unclear whether the proposed rule would allow the use of such offsets. (See, for example, the discussion at 79 Fed. Reg. 34910.)

IV. OTHER TOPICS.

- a. **Potential to trigger New Source Review requirements.** Do you agree that sources undertaking efficiency improvement projects under 111(d) should not trigger NSR permitting requirements for criteria pollutants? Can you provide any technical or legal analysis or justification for why sources complying with the state 111(d) plan should not (or should) trigger NSR permitting requirements?

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WISCONSIN UTILITIES JOINT RESPONSE:

It appears that it is EPA's intent that heat rate improvement projects should not trigger New Source Review (NSR), but the proposed rule does not provide any assurance that NSR would be avoided in all cases. Wisconsin utilities agree that sources undertaking efficiency improvement projects under 111(d) should not trigger NSR permitting requirements for collateral increases of criteria pollutants.

- b. **Permit interaction under multiple federal rules.** Do you have concerns about how the different requirements under different rules (i.e., the CO₂ NSPS, the modified and reconstructed source proposal and the existing source proposal) interact for permitting purposes? How should EPA and WDNR handle these interactions?

WISCONSIN UTILITIES JOINT RESPONSE:

Requirements resulting in differing regulations that target the same pollutants can result in competing obligations that usually create administrative burden for the affected sources. This has been a common occurrence as National Emissions Standards for Hazardous Air Pollutants (NESHAP) Maximum Achievable Control Technology (MACT) standards are implemented as well as NSR requirements and State air quality programs. EPA and WDNR should carefully assess the monitoring and recordkeeping of various regulatory programs, recognize and utilize monitoring and recordkeeping protocols currently in place for demonstrating compliance with CO₂ regulations in order to avoid redundant or conflicting requirements.

V. MODIFIED AND RECONSTRUCTED SOURCE PROPOSED RULE.

- a. **BSER.** The baseline for modified steam boilers and fossil fuel gasification units is based on each unit's best historical annual emission rate plus an additional 2% emission reduction. Is this an appropriate baseline? Should EPA use an averaging period in determining a historic emission rate? Is it reasonable to require an additional 2% emission reduction?

WISCONSIN UTILITIES JOINT RESPONSE:

The baseline should not be the best historical annual emissions rate since this does not factor in variables that can affect a unit's performance and CO₂ emissions, such as load, fuel quality, and temperature. The appropriate baseline should be at least a three year average or more appropriately, a five year averaging period that would match New Source Review air permitting requirements for evaluating a modification. The 2% emission reduction may present challenges for reasons discussed in the response to Question II.b.i. on the feasibility of and ability to sustain Heat Rate Improvements. Therefore, the EPA's final rule should not be any more stringent than the 2% level.

- b. **Proposed emission limits.** Are the emission limits that EPA proposes for modified and reconstructed units appropriate?

WISCONSIN UTILITIES JOINT RESPONSE:

No, the emission limits that EPA proposes are too stringent, because they cannot be met even by new supercritical units on a net basis.