

Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

WDNR and PSCW Questions on EPA's Clean Power Plan Proposal.

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.)?

*Please refer to Wisconsin Utilities joint response.*

- 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 was not a Wisconsin Utilities joint response question. WPL offers the following comments:*

*WPL believes that its Tier 1 coal-fired units (Columbia Unit 1, Columbia Unit 2, and Edgewater Unit 5) will continue to operate given the flexibility in the EPA's Clean Power Plan proposal.*

- 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 was not a Wisconsin Utilities joint response question. WPL offers the following comments:*

*WPL recognizes that there are varying opinions on the EPA's consideration of the electrical system as a whole in setting BSER versus an 'inside the fence line' approach. An 'inside the fence line' approach follows the traditional application of emissions limitations to affected sources under Clean Air Act regulation. However, the ability to consider additional emissions reductions more broadly, as proposed by the EPA, provides for greater flexibility, which is an element WPL supports in managing costs on behalf of customers. WPL continues to analyze the rule, including the EPA's consideration of the electrical system, as a whole, in setting BSER.*

*WPL plans to work with our regulators and legislators as more details of EPA's rules become available and plans to comply with any final requirements that apply to us. Whatever the final rule outcome, WPL believes that EPA's broader goal to achieve CO<sub>2</sub>*

## Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

*reductions should:*

- *Recognize the significant investments already made and that these early actions are provided full credit towards future compliance in the final rules; and*
- *Provide attainable goals on a reasonable timeframe to maintain reliable and cost-effective power for our customers.*

### 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?

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

- iii. Does 2012 represent normal operating conditions?

*Please refer to Wisconsin Utilities joint response.*

- 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.

*This was not a Wisconsin Utilities joint response question. WPL offers the following comments:*

*WPL believes that credit for early actions should be treated more equitably under the Clean Power Plan rule. WPL has reduced its total CO<sub>2</sub> emissions approximately 13% from 2005 to 2012, before taking into account WPL's purchase of existing generation resources during this period – specifically, the Neenah Energy Facility in 2009 and Wisconsin Electric Power Company's 25% interest in Edgewater Generating Station Unit 5 in 2011. The CO<sub>2</sub> reductions primarily came in the form of plant retirements and many of these reductions are not recognized since they occurred prior to 2012. Specific examples include:*

**Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014**

*i. Blackhawk Generating Station – Units 3 and 4 ceased operations in 2009, resulting in an annual reduction of approximately 7,900 tons of CO<sub>2</sub>.*

*ii. Rock River Generating Station – Units 1 and 2 ceased operations in 2009, resulting in an annual reduction of approximately 127,400 tons of CO<sub>2</sub>.*

*In addition to the items above that reduced CO<sub>2</sub> emissions, WPL also added owned wind resources into its portfolio, which contributed to additional tons of avoided CO<sub>2</sub> emissions.*

*iii. Cedar Ridge Wind Farm (located in Wisconsin) – Began operation in December 2008. In 2012, this facility generated 188,161 MWh resulting in approximately 165,200 tons of CO<sub>2</sub> avoided. This number was calculated based on EPA's egrid non-baseload CO<sub>2</sub> emission rate of 1,755.66 lb/MWh for the MRO East North American Electric Reliability Corporation (NERC) region.*

*iv. Bent Tree Wind Farm (located in Minnesota) – Began operation in February 2011. In 2012, this facility generated 430,668 MWh resulting in approximately 442,200 tons of CO<sub>2</sub> avoided. This number was calculated based on EPA's egrid non-baseload CO<sub>2</sub> emission rate of 2,054.55 lb/MWh for the MRO West NERC region.*

- 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.

*Please refer to Wisconsin Utilities joint response.*

- i. Building Block 1: Heat Rate Improvements.** This block calls for an overall 6% improvement in the heat rate of coal units.

*In addition to the Wisconsin Utilities joint response, WPL offers the following comments:*

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 Power and Light Company (WPL) Response – Submitted September 10, 2014

*WPL expects to be able to improve heat rate on its Tier 1 units (Columbia Units 1 and 2 and Edgewater Unit 5) over the next few years, primarily through equipment upgrades.*

*More specifically, the Columbia Energy Center project to upgrade the Coal Pulverizers and Steam Turbines (Docket No. 05-CE-141) allows for the following estimated performance benefits:*

- 440 Btu/kWh heat rate improvement, which equates to approximately a 4% efficiency improvement (4% reduction in coal burned) per MWh produced on each unit;*
- 95 MW total plant operating capacity increase, which would result in an approximate 9% increase in energy production per year;*
- 25 MW total plant unforced capacity increase, which could be used to offset capacity market purchases; and*
- A reduction in major overhaul frequency from 7 years to 10 or more years.*

*Turbine and other equipment upgrades at Columbia Units 1 and 2 are scheduled for installation in 2016 and 2017. Edgewater Unit 5 is currently evaluating the benefits of equipment upgrades, including improved turbine performance.*

*At WPL's Tier I units, maintaining optimum equipment condition is a priority. As such, there is minimal room for improvement via best practices since most of these are already implemented. WPL estimates that up to a 2.5% improvement is available at lower load points from opportunities that could be called best practices, such as improved air heater seals and reducing condenser air in-leakage.*

*WPL does not have plans for heat rate improvements at its remaining coal-fired units, which are expected to be retired by the end of 2015 (Edgewater Unit 3 and Nelson Dewey Units 1 and 2) or retired or refueled by the end of 2018 (Edgewater Unit 4). EPA did not consider these activities as it developed the Building Block 1. WPL believes that heat rate improvements for Edgewater Units 3 and 4 as well as Nelson Dewey Units 1 and 2 should not be included in the EPA's final goal assessment for Wisconsin.*

Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

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

*Turbine upgrades and pulverizer replacements on Columbia Units 1 and 2 are scheduled for completion in 2017, for a cost of \$130 million (100% share, fully loaded, no AFUDC). Heat rate improvements, including a turbine upgrade, are currently under evaluation for Edgewater Unit 5. Costs and schedule are not yet developed.*

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

*Please refer to Wisconsin Utilities joint response.*

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?

*Please refer to Wisconsin Utilities joint response.*

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)?

*Please refer to Wisconsin Utilities joint response.*

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 was not a Wisconsin Utilities joint response question. WPL offers the following comments:*

*The following tables present heat rate improvements made since 2005, with cost and percentage change in heat rate for each of WPL's Tier 1 units. All costs are in millions of dollars, 100% share, fully loaded with no AFUDC.*

Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

Columbia 1			
Date	Project	Cost (millions)	Heat rate change, %
2006	Turbine overhaul	\$4.9	1%, with degradation until 2014
2007	Neural Net for combustion optimization	\$0.4	Not quantified, emissions improvement was primary goal
2011	Condenser re-tube	\$5.2	Long term benefit to sustain heat rate based on ability to keep clean and prevent leaking tubes.
2014	Turbine overhaul	\$3.7	1%

Columbia 2			
Date	Project	Cost (millions)	Heat rate change, %
2005	Turbine Overhaul	\$3.5	1%, with degradation until 2013
2007	Neural Net for combustion optimization	\$1.1	Not quantified, emissions improvement was primary goal
2013/2014	Condenser re-tube	\$2.0	Long term benefit to sustain heat rate based on ability to keep clean and prevent leaking tubes.
2013	Turbine Overhaul	\$3.0	1%

Columbia 1 and 2 (combined projects benefit both units)			
Date	Project	Cost (millions)	Heat rate change, %
2014	Cooling Tower replacement	\$19.2	0.5%

Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

Edgewater 5			
Date	Project	Cost (millions)	Heat rate change, %
2006	Turbine overhaul	\$2.5	1.3%
2007	New burners and airflow measurements	\$15.2	Resulted in better control of excess air and thus efficiency. Benefit has not been quantified as emissions improvement was the primary project goal.

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 was not a Wisconsin Utilities joint response question. WPL offers the following comments:*

*The following tables present heat rate changes from emission control projects at WPL's Tier 1 units, with cost and percentage change in heat rate for each unit, and whether these changes are considered in EPA's 2012 baseline is outlined below. All costs are in millions of dollars, 100% share, fully loaded with no AFUDC.*

Columbia 1 and 2 (combined projects benefit both units)				
Date	Project	Cost (millions)	Heat rate change, %	Included in 2012 baseline?
2005	Combustion Initiative	\$16.3	Not quantified, purpose of project was to improve emissions	Yes
2014	Scrubber/baghouse	\$599.0	0.96% increase (worse)	No

Edgewater 5				
Date	Project	Cost (millions)	Heat rate change, %	Included in 2012 baseline?
2007	New burners and airflow instruments	\$15.2	Not quantified, purpose of project was to improve emissions	Yes
2012	Selective Catalytic Reactor (SCR)	\$134.6	0.3% decrease (improvement – attributed to fan upgrade and VFD's)	No



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

*In addition to the Wisconsin Utilities joint response, WPL offers the following comments:*

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?

*WPL can only respond regarding its own NGCC generating station and cannot respond regarding other Wisconsin NGCCs. The WPL Riverside NGCC, which is located between Janesville and Beloit, has a nameplate capacity of 600 MW deliverable into the electric network. WPL also owns and operates natural-gas fired simple cycle combustion turbines (simple cycle CTs). This response will not address these units, except as their operation is affected by the proposed Clean Power Plan.*

*This series of questions includes inquiries about the NGCCs operating at a 70% capacity factor. WPL understands the questions to refer to an annual 70% capacity factor.*

*WPL anticipates that Riverside would have the ability to operate at a 70% annual capacity factor, but its capacity factor will ultimately be influenced by the MISO market needs. WPL has arranged for year-round firm interstate gas pipeline capacity and has sufficient local distribution system capacity to make gas deliveries to the plant. The plant currently operates at about a 30% capacity factor, which provides time to schedule planned shutdowns for maintenance of the turbines, generators and auxiliary equipment. If unit capacity factor increased to 70% operations then maintenance needs in general will increase, while the time intervals available for major overhauls would decrease.*

*WPL currently anticipates that the most direct effect of operating NGCCs at a high annual capacity factor may be an increase in the need to operate simple cycle CTs. The MISO hourly market solution co-optimizes the commitment and dispatch of units to provide energy and operating reserves (i.e., regulation, spinning reserves and supplemental reserves) in the most cost-effective manner. Currently, NGCCs are often committed to provide both energy and reserves. To the extent NGCCs operate at higher capacity factors, simple cycle CTs may be committed and dispatched more for operating reserves and to provide energy at times of higher demand.*



*WPL does not have firm interstate pipeline capacity for any of its simple cycle CTs. This could pose a reliability risk because it may not be possible to obtain such capacity without a build-out of the interstate pipeline system supplying Wisconsin. There are also air and other permit limits on simple cycle CTs that limit operating hours and starts, which could also lead to reliability concerns as those limits are approached. Costs will likely increase, as simple cycle CTs are not as efficient compared to the NGCCs that would be already operating to provide energy.*

2. Is this building block likely to create electrical reliability issues if NGCC capacity isn't available for increased dispatch upon demand? Would operating NGCC units at 70% capacity affect utilities ability to maintain the required 15% reserve capacity for reliability purposes?

*Please refer to Wisconsin Utilities joint response.*

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.

*Infrastructure*

*Currently, WPL has adequate infrastructure to operate Riverside reliably, but pipeline expansions may be necessary if WPL's simple cycle CTs start to be required as firm resources in the winter as a result of the Clean Power Plan. To explain this it's very important to understand the difference between an annual capacity factor and peak day pipeline capacity needs. It's also important to understand the differences between summer and winter operating conditions.*

*Currently, WPL has enough firm interstate pipeline capacity to enable Riverside to operate at about 75% to 80% of its daily maximum output during the winter. Due to the EPA's proposed Clean Power Plan, WPL may consider the purchase of some additional firm interstate pipeline capacity.*

*While WPL does rely on its gas-fired simple cycle CT fleet to meet peak summer demand, firm pipeline contracts are not currently needed because the overall demand for natural gas in Wisconsin is relatively low in the summer. That means that WPL can supply these units reliably with non-firm pipeline resources in the summer.*

*In the winter, WPL does not currently need most of these simple cycle CTs to meet peak winter demand, so it does not contract with the interstate*

Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

*pipelines for firm services. If the proposed rule causes some of or all of WPL's simple cycle CTs to be needed to meet peak or near peak winter demand, major pipeline infrastructure improvements could be needed.*

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?

*Please refer to Wisconsin Utilities joint response.*

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?

*As indicated earlier, WPL's single existing (Riverside) NGCC is already capable of a 70% annual capacity factor. Defining the State Plan, which will provide more direction on how the different types of units may be dispatched, will enable utilities to identify if additional infrastructure is needed to support reliability. Having flexibility in the generation fleet and the continuation of economic dispatch will lead to the most cost-effective implementation for customers.*

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?

*Please refer to Wisconsin Utilities joint response.*

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.

*Please refer to Wisconsin Utilities joint response.*

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?

*Please refer to Wisconsin Utilities joint response.*

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?

*Please refer to Wisconsin Utilities joint response.*

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

*In addition to the Wisconsin Utilities joint response, WPL offers the following comments:*

*WPL owns and operates the Bent Tree Wind Farm located in Freeborn County, Minnesota. This 200 MW site commenced commercial operation in February 2011 and was built to support compliance with the Wisconsin Renewable Portfolio Standard.*

*EPA's proposal determined goals based on the geographic location of generation resources within each state irrespective of ownership or use. Therefore, EPA's proposed Clean Power Plan considered the Bent Tree Wind Farm as part of the Minnesota state goal calculation. WPL believes that the appropriate accounting for Bent Tree Wind Farm is towards Wisconsin's goal calculation and assessment of compliance. WPL believes that this correction should be made in the EPA's final rulemaking.*

*In addition, WPL believes that their utility investments for wind purchase power agreements (PPAs) should have the flexibility to be recognized towards Wisconsin's state compliance.*

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?

*Please refer to Wisconsin Utilities joint response.*

Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

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

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

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?

*In addition to the Wisconsin Utilities joint response, WPL offers the following comments:*

*WPL also believes that the EPA's proposed calculation methodology of the renewable (RE) potential should have been based on a more robust level of study support. EPA utilizes the average deployment rate of the top third (16) of states in designating a benchmark RE technical development rate for each technology type. EPA's decision and rationale to utilize only the top third of the states for determining the benchmark RE development rate is not sufficiently explained and fully justified in technical support documentation.*

*Additionally, the data that EPA used for "potential RE" that could be realized in a given state is obtained utilizing just one study's results, performed by the National Renewable Energy Laboratory (NREL). Although NREL is a reputable independent source for such data, WPL believes additional cross-checks and data verification would add credibility to this very important data input and process. The information utilized from this one study and its impact on the concluding RE target levels is too important not to be cross-checked and independently verified through multiple sources.*

*WPL believes that given the nature of how the alternative RE approach is calculated, the model is specific in reviewing the in-state potential for a*

*particular RE source; therefore, by defining it in this way, it would be difficult to approve out-of-state RE as contributing toward the goal. One alternative approach that might assist with utilizing out-of-state RE in this effort is if the EPA utilized a regional average benchmark RE technical development rate in lieu of a state specific rate. In this scenario, EPA would create a unique "regional technical benchmark" for each RE technology, which would be utilized to calculate the potential RE for any of the states in that particular region.*

**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?

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

**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.

*Please refer to Wisconsin Utilities joint response.*

- 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.

*Please refer to Wisconsin Utilities joint response.*

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?

*Please refer to Wisconsin Utilities joint response.*

- 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?

*Please refer to Wisconsin Utilities joint response.*

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?

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

- 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?

*Please refer to Wisconsin Utilities joint response.*

- 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)?

*Please refer to Wisconsin Utilities joint response.*



## Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

- 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?

*Please refer to Wisconsin Utilities joint response.*

- 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)?

*Please refer to Wisconsin Utilities joint response.*

- 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 was not a Wisconsin Utilities joint response question. WPL offers the following comments:*

*At this time, WPL cannot predict how much additional renewable generation and what type of renewable generation will be needed to comply with this rule given the uncertainties in the framework.*

*In regard to where additional renewable generation may be built, if necessary, WPL must weigh many factors that affect the delivered cost per megawatt-hour as we strive to keep costs low for our customers. Key factors that affect that cost include transmission interconnection, the deliverability of the renewable energy and how it may be affected due to congestion, and in the case of wind resources, the wind regime. Another consideration as it relates to siting is state and local permit requirements. All of these factors need to be evaluated in determining where to site new renewable resources.*

*An important consideration will be whether the final Clean Power Plan rules allow renewable resources located in another state to be "claimed" by a load serving entity (LSE) serving customers in its own state. If not, then the LSE may need to consider building the resources in its own state, regardless of cost-effectiveness as compared to building in another state.*

- 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 Power and Light Company (WPL) Response – Submitted September 10, 2014

*Please refer to Wisconsin Utilities joint response.*

- 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?

*In addition to the Wisconsin Utilities joint response, WPL offers the following comments:*

*Scaling energy efficiency savings for net importing or net exporting states does not appear to be appropriate. The MWh load requirement of a utility is a balance of generation and market purchases, reflecting economics and what is best for the customer. Possible options to consider are:*

*Option #1: Base the energy efficiency goal on net generation of the utilities in each state's generation mix, which would include generation assets owned by a utility outside the state that are part of a Wisconsin utility's generation portfolio. The MWh imported could be calculated for the (lb/MWh) of CO<sub>2</sub> by source and factored into the EE saving goal.*

*Option #2: Energy Efficiency goals would be based on a regional approach, i.e. Midwest Regional Operator (MRO) or a group of states that would work together to achieve Clean Power Plan emission reduction mandates.*

h. **Trading program.**

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

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

**Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014**

- iv. Would it be appropriate to have separate systems for trading pounds of CO<sub>2</sub> and avoided megawatt-hours of generation?

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*

- vi. Who should manage emission trading systems?

*Please refer to Wisconsin Utilities joint response.*

- 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 CO<sub>2</sub> emissions) would be displaced by renewable electricity and energy efficiency measures. What would be the best way to determine this?

*Please refer to Wisconsin Utilities joint response.*

- 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 was not a Wisconsin Utilities joint response question. WPL offers the following comments:*

*Making an existing state program (such as the RPS and Focus on Energy) federally enforceable could create certain issues. For example, once federally-enforceable, the state would likely be restricted from substantively amending or modifying the program without federal approval. This could limit the state's ability to act on policy or programmatic decisions. In contrast, if such state programs are not explicitly used as the compliance measure under the Clean Power Plan, the state would likely retain more flexibility to modify or amend its programs.*

- 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?

*Please refer to Wisconsin Utilities joint response.*

## Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

- 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?

*In addition to the Wisconsin Utilities joint response, WPL offers the following comments:*

*WPL supports consideration that the State would give toward biomass as a compliance option. Wisconsin is a biomass-rich state, and there is interest in further developing the role of biomass in generation (including potentially blending biomass with coal to achieve CO<sub>2</sub> reductions).*

*WPL believes that biomass should be treated as carbon neutral, both for goal-setting and for demonstrating compliance, and encourages the State to advocate this position when biomass is used to generate electricity.*

*The ability to co-fire biomass with fossil fuel, specifically coal, provides an additional opportunity for “inside the fence line” CO<sub>2</sub> emissions reduction. This could be an important compliance option at coal-fired units, including those in which utilities have invested to comply with environmental requirements, such as EPA’s Mercury and Air Toxics Standards (MATS). Moreover, co-firing biomass could support the forestry and wood products industry across the State.*

*WPL supports the concept of additional credit for methane reduction from biomass-based generation such as ag-digesters, as well as generation from landfill gas and wastewater treatment systems – each of which beneficially reduce methane emissions. However, WPL recommends the State support the development of a national standard for conversion of methane to CO<sub>2</sub> reduction for consistency. Otherwise each state could conceivably come up with their own method of calculating methane reduction credit, which could result in the failure to defend the benefits of any methane reductions.*

#### 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?

*Please refer to Wisconsin Utilities joint response.*

- b. **Permit interaction under multiple federal rules.** Do you have concerns about how the different requirements under different rules (i.e., the CO<sub>2</sub> NSPS, the modified and

## Wisconsin Power and Light Company (WPL) Response – Submitted September 10, 2014

reconstructed source proposal and the existing source proposal) interact for permitting purposes? How should EPA and WDNR handle these interactions?

*Please refer to Wisconsin Utilities joint response.*

### 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?

*Please refer to Wisconsin Utilities joint response.*

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

*Please refer to Wisconsin Utilities joint response.*