UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets, and Energy Infrastructure	Docket No. AD15-4-000

WRITTEN STATEMENT OF MIKE PETERS ON BEHALF OF WPPI ENERGY REGARDING ELECTRIC RELIABILITY CONSIDERATIONS OF THE CLEAN POWER PLAN

I appreciate the invitation to speak on reliability considerations of the proposed Clean Power Plan ("CPP") at the March 31, 2015 Central Region Technical Conference.

My name is Mike Peters, and I am President and CEO of WPPI Energy, a municipal joint action agency providing bulk power and other services to our 51 members (50 municipalities and one cooperative in Wisconsin, Michigan, and Iowa), each of which operates a distribution utility and sells electricity at retail to the residences, businesses, and industries in and around its municipality.

While WPPI is a load serving entity, WPPI is also a generator owner and purchases output under long-term contracts. We own or contract for generation both within the Wisconsin Upper Michigan System area ("WUMS") and outside WUMS—in Minnesota, Iowa, and Illinois. I am including a map showing the locations of WPPI's members and generation resources as Attachment A.

Our members are not just in the energy business, they are also integral parts of their communities, maintaining a strong sense of environmental responsibility to the cities and villages they serve. WPPI has been proactive in reducing our greenhouse gas emissions; since

2005, we have quantified and tracked greenhouse gas emission levels and factored the goal of emissions reduction into our power supply planning. For more than ten years, our members have recognized the value of energy efficiency, and our aggressive energy efficiency program has resulted in a total savings of approximately 350,000 MWh from 2005 through 2012. Over the last seven years alone, our efforts have resulted in a cumulative reduction in system demand of over 50 MW.

WPPI has also embraced renewable energy and other carbon-free power supply resources. Our 2013 power supply portfolio included 13% renewables and 23% nuclear. In 2011, we entered into a long-term power purchase agreement for approximately 160 MW of nuclear capacity made available by an extended power uprate at Point Beach Nuclear Plant. And we have invested in reducing emissions from our coal-fired generation, including a 2010 steam turbine upgrade project at Boswell Energy Center Unit 4.

While WPPI has a demonstrated commitment to the ultimate goal of the CPP, reliability is WPPI's primary concern as we consider the details of what the CPP would require.[1] Although WPPI is a relatively small utility (our peak load is approximately 1,000 MW), we will be impacted by five separate states' plans—plans which we cannot control or predict. There is an added level of uncertainty when we think about how these five unknowns will interact with one another, and we believe that there is a need for more modeling that examines the consequences of states choosing different approaches, some using mass-based and others using rate-based plans, to better understand potential reliability impacts.

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[1] WPPI submitted comments on the CPP to EPA. Comments of WPPI Energy, Nov. 28, 2014, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Elec. Util. Generating Units*, Docket No. EPA-HQ-OAR-2013-0602, *available at* http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2013-0602-22708.

A. Flawed assumptions in setting individual state goals may impair reliability.

This Commission has an important role in the CPP that is distinct from EPA's role as the agency ultimately responsible for this rule. We encourage this Commission, as the federal agency with the expertise and authority to evaluate reliability concerns, to work with EPA to define a role that recognizes the importance of reliability.

This Commission could help EPA understand that, as proposed, the CPP does not appear to fully account for the intricacies of unit operational issues, and that the consequences of these omissions are that the assumptions used in setting individual state targets may not be accurate. As states struggle to comply with these targets, reliability may be impacted in ways not predicted or understood by EPA.

The CPP would likely require significant changes to the composition and operation of the electric system. For example, the efficiency difference between low load and optimum efficiency (usually near full load) can be significant for coal-fired units. The CPP intends that coal units would run less frequently, and yet it may be impossible to reduce emissions from coal units to the extent anticipated by EPA because less frequent operation reduces operational efficiency. Similarly, it will be necessary to model natural gas combined cycle ("NGCC") units as baseload units—accounting for both operational differences and infrastructure needs—to fully understand their capabilities and limitations related to meeting a state goal. When the relevant range of potential activities is modeled, the emissions reductions predicted by the CPP may simply be infeasible, leaving states with overly stringent goals that they are unable to meet because the assumptions underlying those goals are unrealistic. Wherever erroneous assumptions undermine a state's ability to create a feasible plan, the potential for reliability issues increases.

Additionally, states may not control every aspect of the building blocks they need to comply with the CPP or to access all necessary measures to maintain reliability. Although EPA views nuclear units as a good source of carbon-free generation, in many cases there may be very little a state can do to promote or preserve in-state nuclear capacity.[2] The owner of a nuclear unit decides its fate, while authority over uprates and licensing lies with the Nuclear Regulatory Commission. Similarly, although a plant in a neighboring state may have significant effects on other states, those other affected states likely have no say in plant decisions.

B. The interaction of individual state plans may impair reliability.

Just as a generating unit in one state may support load in a neighboring state, there is considerable work to be done to analyze the seams of individual plans and what the impacts on reliability may be as compliance choices affect offer prices so that the system is dispatched in a radically different manner than that assumed when planning the system based on economic dispatch. States may choose a rate-based or a mass-based approach, but WPPI is not aware that NERC, MISO, or another entity has fully modeled and analyzed the potential impacts of a patchwork of compliance approaches. Most analyses done to date assume, either explicitly or implicitly, that states will adopt a mass-based approach. As explained below, the universal adoption of a mass-based approach likely represents a best-case scenario from the standpoint of minimizing disruption of electric markets. The potential operational issues and associated infrastructure requirements (and their timelines) that may arise if neighboring states adopt different approaches (or fail to submit a plan at all) must be considered.

[2] This is particularly true where a unit relies on market revenues rather than state regulated rates to recover its costs.

Different choices of compliance approaches will also create a potential for variation in offer prices between states and an accompanying threat to reliability as the system is dispatched in a manner for which it has not been planned. Variation will occur even if all states choose rate-based approaches, because states have different emission rate goals. But more significant variations will occur if some states choose rate-based approaches and other states choose mass-based approaches. These scenarios will likely cause offer price differences that affect dispatch and could require infrastructure development (which needs time) to maintain reliability. Also, at some point, the grid operator may not be able to work around the resulting shifts in generation dispatch within MISO.

In their offers into an RTO market, generators can be expected to include any emission compliance costs associated with their operation. To explain this concept, I assume the existence of a trading system and a market for emission allowances (in the case of a mass-based system) or emission credits (in the case of a rate-based system). However, this concept is equally applicable in the absence of such a trading system, because the generator's cost to acquire allowances or credits would simply be replaced by the generator's implicit cost of emission compliance.

Under a rate-based system, a generator will need to provide emission credits only if and to the extent that the generator's emission rate exceeds the state's emission rate goal. For example, in a state with an emission rate goal of 1,200 lbs CO_2 per MWh, a coal plant with an emission rate of 2,200 lbs CO_2 per MWh will need to provide 1,000 lbs of CO_2 credits for each MWh the plant produces and would be expected to include the cost of these credits in its offer. If a generator's emission rate is lower than the state's emission rate goal (as is the case with natural gas combined cycle plants in most states in the MISO North region), the generator will produce excess credits when operating and would be expected to reflect the expected revenue from the sale of these credits as a reduction in the level of its offer. In a state with an emission rate goal of 1,200 lbs CO_2 per MWh, a combined cycle plant with an emission rate of 800 lbs CO_2 per MWh will produce 400 lbs of surplus CO_2 credits for each MWh the plant generates, and would be expected to include the revenue from the sale of these credits as a deduction from its offer price. Since EPA has assigned different emission rate goals to each state, identical generators in different states that adopt a rate-based approach would need to acquire (or would be able to sell) differing numbers of emission credits as a result of their operation. As a result, identical generators with identical fuels costs would be expected to offer their energy into the market at different prices.

Under a mass-based system, a generator will need to provide emission allowances to cover all of the emissions associated with its operation. Regardless of a state's emission mass limit, a coal plant with an emission rate of 2,200 lbs CO_2 per MWh will need to provide 2,200 lbs of CO_2 allowances for each MWh the plant generates, and a combined cycle plant with an emission rate of 800 lbs CO_2 per MWh will need to provide 800 lbs of CO_2 allowances for each MWh the plant generates. Both plants would be expected to include the cost of these allowances in their offers. This will be true even if a state allocates allowances to generators and a generator holds sufficient allowances to cover its emissions; because the generator can sell allowances it does not use, the generator will lose this potential revenue if it needs to use the allowances for compliance, so there is still a cost associated with the allowances. Thus, under a mass-based system, identical plants will need to provide the same number of allowances regardless of the state in which they are located. This number of allowances, however, will be significantly different from the number of credits that must be provided by an identical plant in a state that adopts a rate-based approach.

I have attached a map of the MISO North region showing an example of how generators' offer prices may vary depending on each state's compliance approach. In this example, we assume a price of CO_2 of $25 per ton and assume that a NGCC plant has an emission rate of 800 lbs CO_2 per MWh and a coal plant has an emission rate of 2,200 lbs CO_2 per MWh. As shown in Attachment B, identical units in different states would be expected to have significant price differences depending on the state's compliance approach. For example, the offer prices of identical generators in North Dakota and Minnesota are expected to be more than $10 per MWh apart if both states chose rate-based approaches, and greater than $20 per MWh apart if Minnesota went mass-based and North Dakota went rate-based. This may not even represent a worst-case scenario, since the common CO_2 price between states as assumed in this example would likely only occur in the event of a multi-state approach involving interstate trading of allowances or credits, which is unlikely to be possible if states choose different compliance options. In the absence of such an approach, both the number of required allowances or credits, as well as the price of such allowances or credits, will likely vary between states; potentially producing even wider price swings than assumed in this example.

While the need for RTOs to dispatch generators based on offer prices that incorporate environmental compliance costs will not be new, the magnitude and variation in these compliance costs between states will likely be unprecedented. In particular, the situation in which a generator in one state places an adder on its offer price to cover the cost of emissions compliance, while an identical generator in another state makes a deduction from its offer price for the same reason, has not previously been faced. It is only a matter of time before severe market impacts affect reliability as the system is dispatched under completely different assumptions, not to mention the serious consequences for affordability.

On top of these price differences, WPPI will be in the unenviable (although probably not uncommon) position of being subject to multiple state plans for its generation and load scattered across five different states. MISO's 16 states have different resources, needs, and politics, and many of these states will also have to determine how to develop plans for their entire states when only part of the state lies within the MISO footprint.[3] It is difficult to fully understand at this point the possible reliability impacts of working under state plans that pursue different compliance options: states may opt for rate-based versus mass-based approaches, and states may also adopt plans that do not provide the amount of flexibility required by utilities with operations in different states. It is even possible that some states will not adopt plans and will be regulated under a federal plan, which is currently not a known quantity. Even if WPPI's five states do adopt relatively flexible plans, WPPI may not have access to all of the emission reduction opportunities assumed by EPA in its building block analysis in each state, because we do not have both load and generation in each. Many of these questions cannot be addressed with any certainty until the details of the final CPP and state plans emerge, but these questions and concerns highlight the need to have a serious reliability review.

C. Reliability review should be a careful and ongoing process.

Multiple entities have discussed a "reliability safety valve" in various forms. A number of effective reliability safety valves at different stages of the rule formation and plan review and implementation process will be necessary to minimize the reliability impacts of the CPP. Many of the ideas posed have merit. In particular, I want to highlight the comments of Sue Kelly of

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[3] Nine states are all or mostly in MISO; seven states are partly in MISO. *See Electric Power Markets: Midcontinent (MISO)*, http://www.ferc.gov/market-oversight/mkt-electric/midwest.asp#mkt (updated Feb. 26, 2015).

APPA to this Commission in February on the need for a reliability safety valve,[4] as well as to provide two ideas for a reliability safety valve.

First, because of the potential reliability impacts of implementing a variety of individual state plans, this Commission should consider all state plans together, before they are submitted to EPA for final approval, to identify possible reliability issues. A state would submit its near-final plan to EPA for this reliability review. This Commission would look at all individual plans side-by-side to see where there is a potential for reliability impacts. This Commission could also note areas where coordination could be possible—such as the development of an optional allowance or credit trading system on agreed upon terms—which could be a tool to ensure electric system reliability and coordination among the states and regions as plans are implemented. This Commission would not evaluate state plans for compliance with the CPP, and the recommendations coming out of this review would not be mandatory on the states, but would provide assistance for states as they develop final plans and consider cross-state issues. This Commission would also share its recommendations and concerns with EPA, so that EPA is aware of these issues that may or may not be addressed in final plans. After this reliability review process, states would submit final plans to EPA for approval.

This Commission should work with EPA to build in time for this reliability review, which will likely mean pushing back the deadline for states to submit final plans to EPA for approval. There should be sufficient time to perform the reliability review as well as for states to revise plans based on the outcome of the reliability review, to the extent that a state chooses to do so.

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[4] Statement of Susan N. Kelly, President & CEO, American Public Power Association, Feb. 5, 2015, *Technical Conference on Envtl. Regulations and Reliability, Wholesale Elec. Mkts. and Energy Infrastructure*, Docket No. AD15-4-000, eLibrary No. 20150309-4013.

Second, there should also be a mechanism to address reliability impacts post-implementation. If a generator is ordered to run by a grid operator, failure to follow this dispatch order could be a violation of the tariff and/or reliability standards, potentially with accompanying penalties. Generators should not be forced to choose between keeping the lights on and avoiding carbon emissions, nor should they have to make decisions as to which law they prefer to violate or which penalty they prefer to pay. There must be a mechanism in the final rule to resolve these concerns without penalizing entities caught between a rock and a hard place. RTOs may be in a good position to perform this reliability analysis in the scope of day-to-day operations, recognizing that ultimately an agency such as this Commission may need to address how to handle conflicts between these obligations.

D. Additional time to develop plans and meet compliance targets may mitigate reliability impacts.

More time is crucial to allow for regional or other collaborative approaches, additional analysis, and infrastructure development, all of which can mitigate reliability impacts. This Commission has heard from state agency representatives that they do not have enough time to develop a meaningful regional approach,[5] even though it is very likely that a regional approach would be more cost-effective[6] and could mitigate reliability impacts, as discussed above. However, there are mechanisms that could be implemented to maintain reliability and leave the door open for cross-state collaboration. EPA could encourage the adoption of multi-state trading approaches that maximize the availability of emission allowances or credits. The ability to

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[5] Comments of Alexandra Dapolito-Dunn, Executive Director and General Counsel, Environmental Council of the States, at the Technical Conference on Environmental Regulations and Electric Reliability, Wholesale Electricity Markets, and Energy Infrastructure, Feb. 19, 2015, *available at* http://ferc.capitolconnection.org/.

[6] Comments of Clair Moeller, Executive Vice President of Transmission & Technology, MISO, at the Technical Conference on Environmental Regulations and Electric Reliability, Feb. 19, 2015, *available at* http://ferc.capitolconnection.org/.

readily acquire allowances or credits could allow a plant to run that would otherwise shut down because of emission limits, supporting reliability and addressing the difficult choice of violating the Clean Air Act or the Federal Power Act, an issue on which affected units will require guidance. A trading system would respect the diversity of states within the Central region.

Providing additional time for this Commission to compare plans in a reliability review, as discussed above, and to identify areas where states can collaborate to ensure reliability and areas where infrastructure development may be needed would encourage use of this important option. EPA has proposed to grant a year's extension for states that develop a regional approach and should similarly be willing to build in time for reliability review, and this Commission should emphasize the importance of this review and the associated time it will take.

We also agree with calls to relax or eliminate interim goals. A more gradual slope, rather than a cliff, could ease infrastructure issues that could contribute to reliability problems.

CONCLUSION

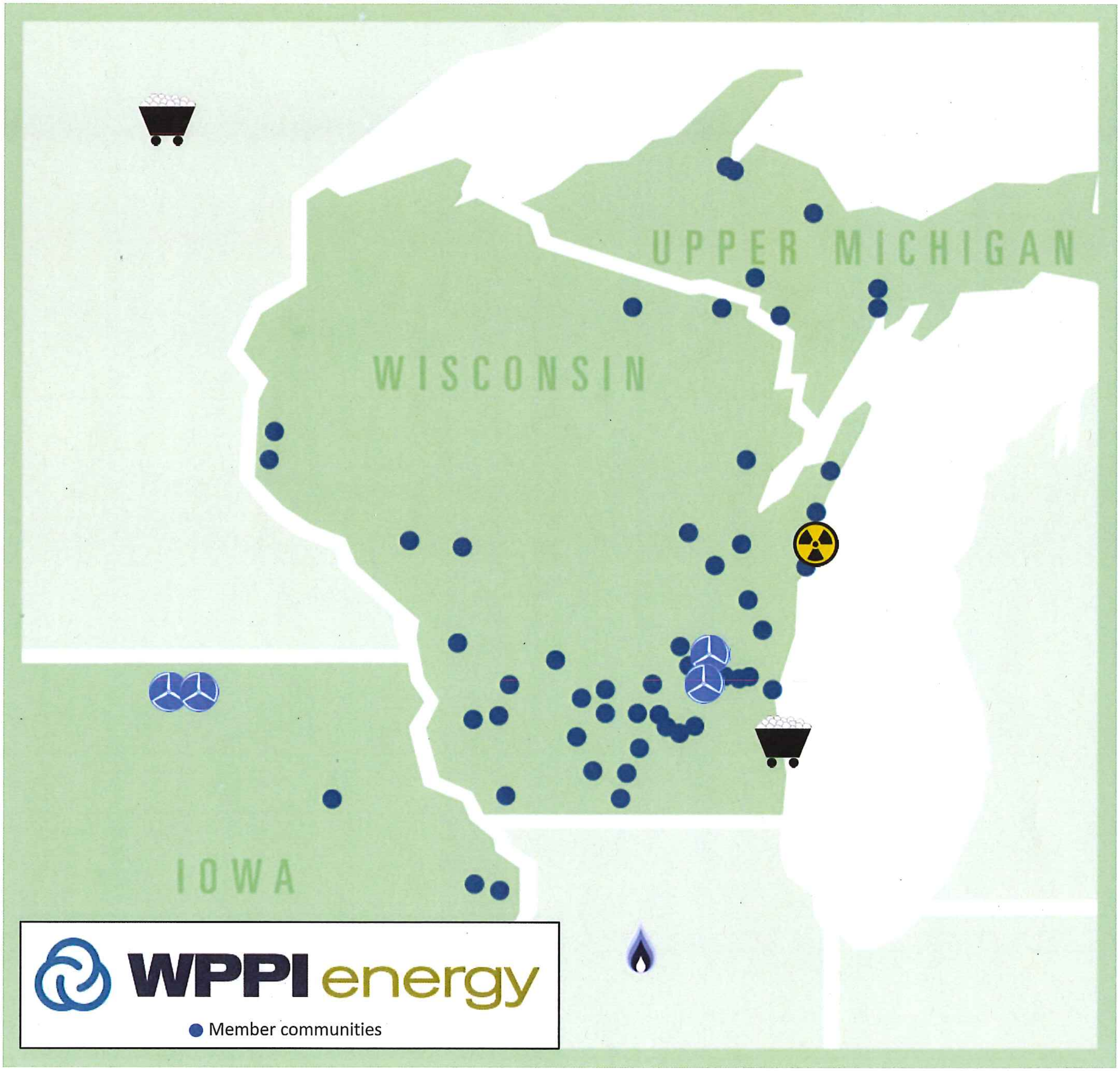
I appreciate this Commission holding this series of technical conferences and hope that the discussion does not end with the close of today's conference. This Commission could provide a valuable forum for the exchange of ideas as the CPP moves forward and additional modeling is performed, and I urge this Commission to continue asking questions and gathering information.

There is also an important role for this Commission in ensuring that state plans are reviewed for reliability issues and the significant changes to system dispatch are evaluated for reliability impacts. During state plan development as well as plan implementation, this Commission should address potential and actual operational issues that create conflicts between reliability obligations and environmental obligations. I urge this Commission to share its knowledge with EPA and to offer its expertise on reliability as state plans are drafted, as well as once plans are implemented.

Again, I appreciate the opportunity to address these important issues and look forward to your questions.

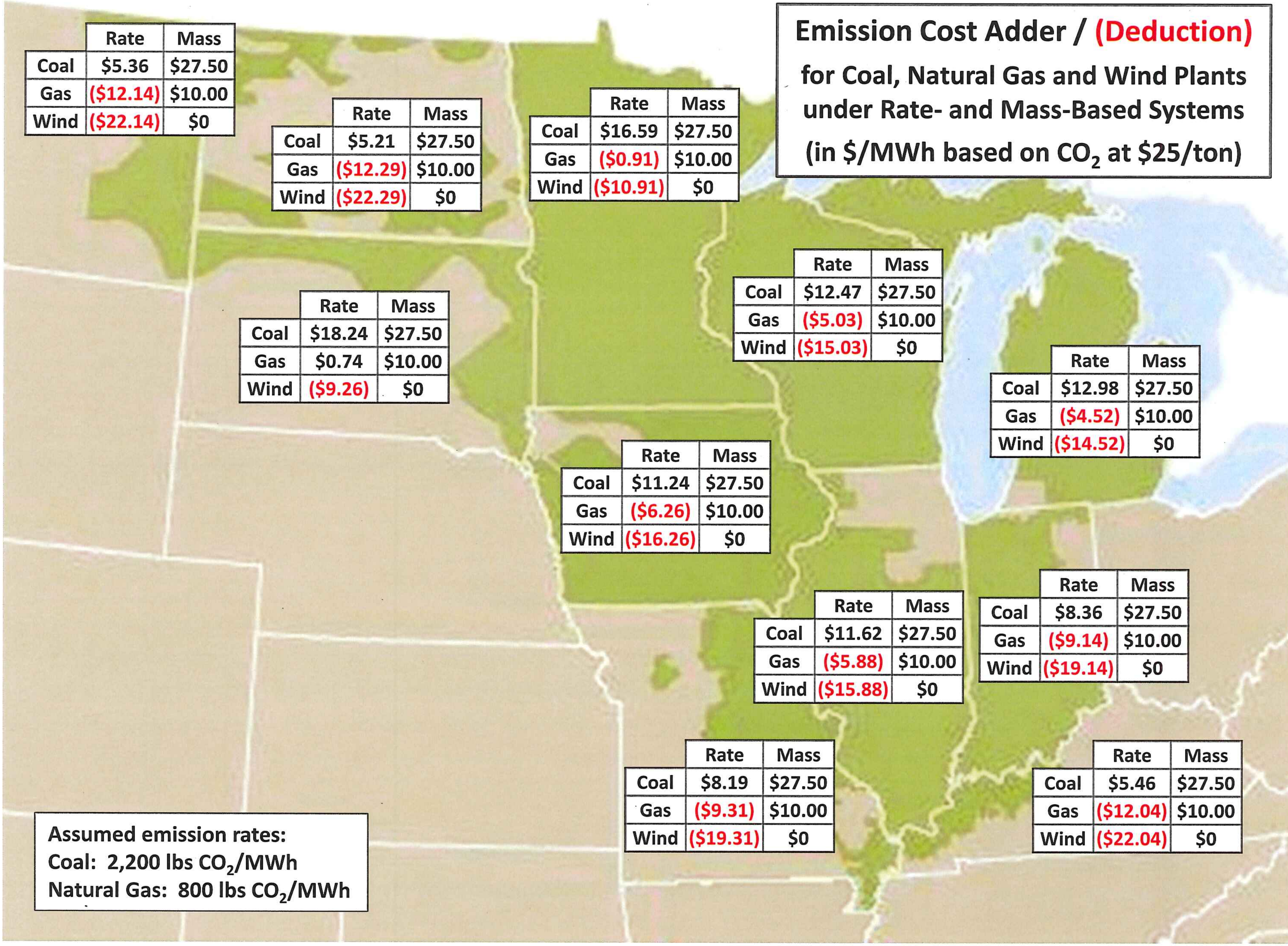
Date submitted: March 25, 2015

ATTACHMENT A



State	Load	Generation			
		Coal	NGCC	Renewable	Nuclear
Illinois					
Iowa	●				
Michigan	●				
Minnesota					
Wisconsin	●				

ATTACHMENT B



Emission Cost Adder / (Deduction)

for Coal, Natural Gas and Wind Plants under Rate- and Mass-Based Systems (in \$/MWh based on CO_2 at \$25/ton)

	Rate	Mass
Coal	$5.36	$27.50
Gas	($12.14)	$10.00
Wind	($22.14)	$0

	Rate	Mass
Coal	$5.21	$27.50
Gas	($12.29)	$10.00
Wind	($22.29)	$0

	Rate	Mass
Coal	$16.59	$27.50
Gas	($0.91)	$10.00
Wind	($10.91)	$0

	Rate	Mass
Coal	$18.24	$27.50
Gas	$0.74	$10.00
Wind	($9.26)	$0

	Rate	Mass
Coal	$12.47	$27.50
Gas	($5.03)	$10.00
Wind	($15.03)	$0

	Rate	Mass
Coal	$12.98	$27.50
Gas	($4.52)	$10.00
Wind	($14.52)	$0

	Rate	Mass
Coal	$11.24	$27.50
Gas	($6.26)	$10.00
Wind	($16.26)	$0

	Rate	Mass
Coal	$11.62	$27.50
Gas	($5.88)	$10.00
Wind	($15.88)	$0

	Rate	Mass
Coal	$8.36	$27.50
Gas	($9.14)	$10.00
Wind	($19.14)	$0

	Rate	Mass
Coal	$8.19	$27.50
Gas	($9.31)	$10.00
Wind	($19.31)	$0

	Rate	Mass
Coal	$5.46	$27.50
Gas	($12.04)	$10.00
Wind	($22.04)	$0

Assumed emission rates:
Coal: 2,200 lbs CO_2/MWh
Natural Gas: 800 lbs CO_2/MWh