

**Interstate Informed Citizen's Coalition, Inc.  
101 E. Adrian Street, Blissfield, MI 49228  
Senate Energy and Tech Committee  
Kevon Martis Testimony Supporting Document Packet  
3/18/2014**

Please consider these attached documents to be part of my testimony:

1. Petition from 73 Delta County residents asking for noise relief from Heritage Energy's Garden Peninsula Wind Plant
2. Letter from USFWS to Heritage Energy opposing the wind plant's construction in the Garden Peninsula
3. Response to *Draft Report on Renewable Energy* by Kevon Martis, Director of IICC and James Fuscaldo, esq., Special Counsel to IICC

October 8, 2012

Delta County Building and Zoning  
310 Ludington Street  
Escanaba, MI 49829

Dear Building and Zoning Board:

The sounds generated by the turbines erected on the Garden Peninsula have caused a great deal of the distress to those of us who live near this wind farm. Residents were told that the sound would not exceed levels of <45 dB(A) at occupied buildings, which was no louder than a dishwasher. Unfortunately, residents do not believe that is case. The sounds are so obnoxious and disturbing that it is causing individuals to have to resort to lifestyle changes that should not have to be endured.

Inside their homes people hear the sounds when they are conversing, watching TV, or simply going about their daily lives, thus increasing stress levels, as well as increasing their concerns over possible hearing loss. All which are bringing the issue of overall health to the forefront. When trying to sleep at night the noise awakens people, and some have a difficult time getting to sleep, making sleep deprivations a real concern.

Outside our home the sound and the feel of the turbulent air movement is further cause for concern. Working in our yards and gardens is no longer a relaxing time. Headaches, earaches, equilibrium issues and an overall uncomfortable feeling is now what is being endured when spending our time outside our homes. It is unconscionable that these turbines were placed so close to homes in an area of such importance to wildlife and people, with little regard to what the effects would be.

We have been advised that studies continue regarding the killing of birds and bats. We also worry about taking away more area for all wildlife. Many of us have noticed far fewer birds in the area. The turbines are like enormous moving scarecrows that also create very uncomfortable sounds and vibrations.

These turbines are too noisy and causing much more disturbance than Heritage promised. We are requesting assistance in measuring the noise levels in question. Individuals living near the turbines are having difficulty proving this issue, and bringing in experts with the sound equipment is very expensive. Therefore, we are respectfully requesting the county to bring in the audio equipment they have at their disposal to help us learn if the sounds we are hearing indeed does exceed recommendations. There may also be a need to re-evaluate the permitted noise levels for future zoning. We would like to see setbacks much further homes. Also, the concerns from the Dept. of Interiors need to be considered regarding the Garden Peninsula.

Delta County, as well as the entire State must be educated as to what having turbines near home and wildlife will do in the long run. Perhaps this type of information will improve regulations made in turbine placement in the future.

Jerry H. Collins

Margaret Richard

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Jean Collins  
Susan Rochefort  
18<sup>th</sup> Rd Garden

Calvin D Richard

73 names

Arthur Damm - 6381 1st Ave

Freddie Tackett 15963 Nettie Ave.  
Jacqueline Tackett

Byron Hage

Richard Monnette 15608 17th Rd.

Mike Hanson 15836 17th Rd

Jeff Tabrow 165 RD

James ~~the~~ 15860 17th Rd

Larry Bann 15740 17th Rd

Robert Cases 15837 17th Rd.

Rock Land P.O. BOX 45 Crocker

Anne Johnson P.O. Box 202 Garden, 49835

John C. Shockey P.O. BOX 202 GARDEN 49835

Rosemary Ann 6477 Winta Ave Garden, Mi 49835

Walter W. Harwin 6477 Winta Ave Garden, Mi 49835

Ethel Eva Harbanski 15769 17th Rd Garden, Mi 49835

Paul Layan

Leo Bodette

Nancy Lester

P. Lutz

Brenda Chase 15712 17th Rd

Viola M. Lester

Travis Harris

Marie Wathen 6889 P.P. Rd  
Ann Arbor 48106 P.P. Rd

Shannon Williams 16405 18<sup>th</sup> rd

Dennis Ansell 16405 18<sup>th</sup> rd

Paul B. Saxon P.O. Box 122 Garden, mi

Francis A. Ansell 16405 18<sup>th</sup> Rd.

Scott Williams

Michael Ruhoff 18<sup>th</sup> Rd Garden

Gordon J. Fourn 15640 17<sup>th</sup> X3 GARDEN

Chad Damer 6400 2<sup>nd</sup> Ave. Garden MI.

Stacy Miller 7779 00.25 Rd Garden, MI

Mary Gollakner 6386 1st. Ave. Garden, MI

Fred Gaten 6157 Garden Bay Ln

Stu. Craig

Carl F Ansell

Nick Young  
7028 00.25 rd

Bill Bodd

Garden, MI 49835

E. Delores Haas

906 450 5042

Jeremy J Ansell 15940 Delta Ave.

Rick L Moire

Gayle May Howd 195 Rene

Charles Fourn

Jeanne Ansell 5694 W Rd Garden, MI

Carolyn Winter 16087 Water St Garden

Gary Fourn

Tom Jacques

Warren J. Hynds 6490 Winter ave Garden 5  
Mary Menoufyzila 6490 Winter ave. Garden

BRUCE TATROW 6457 Winter Ave. Garden MI

~~Bruce Tatrow~~

Pat Zied 15748 18.5 Rd. Garden MI

~~Pat Zied~~ 15670 18.5 Ave. Garden, MI

Violet L. Roduk 15670 18.5 Ave. Garden MI

Raymond Q. Krall 15694 18.5 Ln. Garden, MI

Beverly H. Krall 15694 18.5 Ln. Garden, MI 49835

Janette Guerin 15893 Mill St. Garden, MI 49835

Heather Guerin 6335 State St. Garden, MI 49835

Jane Guerin 6327 State St. Garden, MI 49835

Sarah Jones 15878 Mill St. Garden, MI 49835

Marian Caldwell 6327 State St. Garden, MI 49835

Nicole Guerin 6327 State St. Garden, MI 49835

Vicky Jones 6384 State Street GARDEN MI 49835

Jo Anne LaMoine 15475 Garden Ave Garden MI 49835

~~Pat Zied~~ 16080 Water St Garden MI 49835

Pamela LeBene 16080 Water St Garden MI 49835



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

East Lansing Field Office (ES)  
2651 Coolidge Road, Suite 101  
East Lansing, Michigan 48823-6316

IN REPLY REFER TO:

November 4, 2011

Ms. Xio Cordoba  
Heritage Sustainable Energy  
121 East Front Street  
Traverse City, MI 49684-2570

Dear Ms. Cordoba:

Thank you for your previous correspondence with our office concerning Phase I of your proposed wind energy development located on the Garden Peninsula in Delta County – Township 39N, Range 18W, Sections 4, 5, 6, 7, 8, and 9; and Township 40N, Range 18W, Sections 28, 29, 32, and 33. Our records indicate that Phase I of the proposed project involves 14 commercial wind turbines located approximately 0.5 to 1.5 miles from the Lake Michigan shoreline.

The U.S. Fish and Wildlife Service (Service) supports the development of alternative energy sources. However, if not appropriately designed and sited, wind turbines may negatively impact wildlife and their habitats. Our comments in this letter are provided pursuant to the Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) and Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d; Eagle Act). We provide this information to inform Heritage Sustainable Energy of our assessment of risk to migratory birds and bald eagles from this proposed wind development.

Based on the data currently available, we must once again recommend that you not construct a commercial wind energy development on the Garden Peninsula because of the high potential for avian mortalities and violations of Federal wildlife laws. Since 2007, our office has expressed significant concerns with this project. Our concerns are based on several factors, including the proximity of the project to a Great Lakes shoreline and Big Bay de Noc, the proximity of the project to adjacent wetland habitats, and the fact that this peninsula will tend to funnel avian migrants and serve as a point of departure or arrival for birds crossing Lake Michigan. These factors are all likely to lead to a high level of avian use on the Garden Peninsula that could result in high levels of avian mortality by wind turbines at the proposed project site.

Because of our concerns, in our early project correspondence with Dr. Paul Kerlinger on December 18, 2007, we recommended that no turbines be constructed within three miles of a Great Lakes shoreline. On June 25, 2009, in a letter to Mr. Rick Wilson, we again recommended

that no turbines be sited within three miles of the shoreline and further recognized that it would be very difficult to achieve this three-mile distance at any place within the Garden Peninsula. In 2011, Heritage presented our office with data collected specifically for this project site and this data, described in more detail below, has validated our wildlife related concerns for this proposed project.

We were in the process of finalizing additional information that you had requested concerning our bald eagle risk assessment, when we received your October 18, 2011, letter transmitting a "Comprehensive Avian Risk Assessment for the Garden Peninsula Wind Energy Project, Delta County, Michigan" (September 2011, Curry & Kerlinger, LLC-9-27-11). Your letter indicated that you accepted the conclusions of the Curry & Kerlinger Risk Assessment and intended to move forward with construction of the wind energy development, regardless of our previous recommendations and wildlife concerns.

First, we strongly disagree with the conclusions presented in the Curry & Kerlinger Risk Assessment. The data available suggests that construction of a commercial wind energy development on Garden Peninsula is likely to pose a very high risk for avian mortalities, including a high risk for bald eagle mortalities. The Service will provide you with a more detailed response related to our concerns about the Curry & Kerlinger Risk Assessment in the near future.

Second, although we have appreciated your periodic efforts to coordinate with our office as your project planning has progressed, you have failed to sufficiently collect and analyze comprehensive information concerning avian use of the project area prior to construction. The Service recommends that this information is collected and analyzed well in advance of project construction so that it is available to inform project siting. Additionally, you do not appear to be adequately considering the limited data you have collected. The proposed turbine locations are in areas where you have documented high avian use and thus are not adequately setback from the Great lakes shoreline or other important wildlife habitats. Therefore, we continue to recommend that the project be substantially reevaluated or abandoned.

#### **Migratory Bird Treaty Act**

The MBTA implements four treaties that provide for international protection of migratory birds. The MBTA prohibits any taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Bald and golden eagles are afforded additional legal protection under the Eagle Act. Eagle concerns and recommendations are outlined in the next section of this letter.

Your project specific data documents the high levels of avian use at the proposed project site. For example, monitoring efforts for the proposed project produced a mean of 732.8 "large" birds detected per survey (122.1 "large" birds / hour) and 73.3 "small" birds detected per survey (366.5 "small" birds / hour) in the fall of 2010 within the project area. The presence of birds during these surveys supports the concerns that the Garden Peninsula is an avian migration corridor, especially during the fall, and it is likely an important movement corridor as birds traverse the island chain that extends north from Door County, Wisconsin.

The high level of avian use documented to date at the project site likely presents an incomplete picture of actual avian use and risk. As acknowledged in Curry & Kerlinger Risk Assessment, nocturnal migrating birds very likely utilize the Garden Peninsula in high numbers and congregate in suitable stopover habitat throughout the peninsula in both the fall and the spring. Congregation of these birds is especially likely, near the southern tip of the peninsula. During nocturnal movements to and from these stopover sites, these birds very likely utilize a large percentage of the airspace over the peninsula as they pass south during the fall and north during the spring. To date, Heritage has provided no data regarding use of airspace during nocturnal movements of birds within the peninsula or within this project's phase one boundary. Previous studies using weather radar data has shown large movements of land bird migrations in the fall at night from the Upper Peninsula of Michigan in route to crossing Lake Michigan and presumably passing directly through the Garden Peninsula (Diehl *et al* 2003)<sup>1</sup>. We believe avian mortality during nocturnal movements, particularly when birds are arriving or departing these stopover sites, may be one of the most significant threats to migratory birds from this proposed project.

### **Bald and Golden Eagle Protection Act**

The Eagle Act is one of the primary federal laws protecting eagles and prohibits, among other things, the killing and disturbance of eagles. The Service published a Final Eagle Permit Rule on September 11, 2009 (50 CFR 22.26) authorizing limited issuance of permits to take bald and golden eagles where the take is associated with but not the purpose of an otherwise lawful activity (74 Fed. Reg. 46836, September 11, 2009). A permit is not required to conduct any particular activity, but is necessary to avoid potential liability for take caused by an activity.

Based on the available information to date, our assessment is that the proposed commercial wind energy development on the Garden Peninsula is likely to take bald eagles. We conducted this assessment using the evaluation process described in the Eagle Conservation Plan Guidance. Our assessment is supported by your spring and fall 2010 data which indicates that eagles frequently use the project area and fly within and below the proposed rotor swept area. The results of our initial assessment suggested that eagle fatality rates at the proposed project site may be approximately one eagle every 2.05 years and may be as high as one bald eagle every 0.97 years. Further, the actual risk to eagles may be substantially greater than our initial assessment since eagle use was not quantified for several periods during the year due to a lack of site-specific monitoring data during the early breeding season, late breeding/early fledging period and winter when suitable foraging habitat may be present very near the project area.

### **Summary**

As discussed in previous meetings, previous correspondence, and in this letter, any eagle or migratory bird mortalities caused by your proposed facility would be a violation of the MBTA and/or the Eagle Act. Please be advised, any take of migratory birds is a potential criminal violation of the MBTA and/or the Eagle Act. These events will be properly referred to our law enforcement office for appropriate follow-up. While the Eagle Act does allow the Service to issue a permit for the take of eagles under certain circumstances, (1) based on the information

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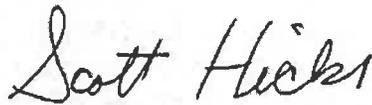
<sup>1</sup> Diehl, R.H., R.P. Larkin, and J.E. Black. 2003. Radar Observations of Bird Migration Over the Great Lakes. *The Auk* 120(2): 278-290.

you have provided, we are not sure that you will be able to meet the criteria [50 CFR § 22.26 (f) - #4 and #5] necessary for a permit to be issued; and (2) you have not applied for a permit to authorize take of an eagle. Currently there is no permit available to authorize the take of migratory birds at wind facilities.

Based on existing knowledge of avian movements in the Upper Peninsula and data provided by you, the project as currently proposed appears to present a very high risk for migratory bird mortalities. Once again, the Service recommends that you reevaluate your project and select an alternative location with less potential for impacts to federally protected wildlife. This has been our recommendation since our first correspondence in 2007 and remains our recommendation today.

Thank you for the opportunity to provide comments on and recommendations for this proposed wind energy development. We welcome the opportunity to work with you in planning of future projects in Michigan, including helping you to screen preliminary sites in order to identify areas early in the process where wind energy is not likely to have high levels of wildlife impacts. Additionally, we are willing to provide advice on wildlife study design to inform future pre-construction studies and of site selection. For questions or further discussion on the contents of this letter, including migratory bird or eagle risk please contact Matt Stuber at 517/351-8469 or [matthew\\_stuber@fws.gov](mailto:matthew_stuber@fws.gov).

Sincerely,



Scott Hicks  
Field Supervisor

cc: MDNR, Wildlife Division, Lansing, MI (Attn: Karen Cleveland)  
MNFI, Joelle Gehring, Lansing, MI  
USFWS, Christie Deloria, Marquette, MI  
USFWS, Chris Aldrich, Office of Law Enforcement, Marquette, MI  
USFWS, Tom Tidwell, Office of Law Enforcement, Ann Arbor, MI

**Response to Draft Report on Renewable Energy**  
**Kevon Martis- Director of Interstate Informed Citizen's Coalition, Inc.**  
**101 E. Adrian Street, Blissfield, MI 49228**  
**10/11/2013**

I hereby submit this response to the "Readying Michigan to Make Good Energy Decisions: Renewable Energy" draft of September 20, 2013.

The draft report in general demonstrates an honest description of issues resulting from the adoption of PA295 and in very general terms IICC supports the bulk of the conclusions with respects to renewable energy generation and attempts to perform meaningful cost/benefit analysis. The format of this brief will be to progress through the draft document sequentially and note areas of agreement and concern. The text in bold is a direct quote from the draft report and our comments follow.

- 1. By the end of 2013, in total, Michigan consumers will have paid approximately \$675 million in surcharges supporting this expansion.***

This is only one measure of the direct impact to the ratepayer. Of equal concern is the substantial wholesale premium ratepayers are absorbing with respect to the average price of fixed renewable energy Power Purchase Agreements relative to the wholesale market value of those contracts, particularly when time of delivery is included. This premium is currently \$112 million per year above average wholesale market prices and far more when the off-peak delivery behavior is considered.<sup>1</sup> (See derivation on page 16)

- 2. This type of simple comparison does not take into account differences in the way renewables are defined.***

The larger question is whether "renewable" is a term with any true value. As this draft report suggests, there is little agreement to the definition on a state-by-state basis. IICC feels the term "renewable energy"<sup>2</sup> is of value primarily as a marketing or political term, not economics. Because MI has little unexploited new hydro potential and because biomass does not appear to be poised to add significant market share, we prefer two broad categories for generation in MI:

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<sup>1</sup> While there is evidence that high percentages of wind depress wholesale spot pricing of electricity, MI ratepayers do not purchase electricity on the spot market. The net effect is actually to lower the value of electricity for all generators. At some level of subsidized wind penetration those other generators financial viability is jeopardized. Wind PPA's have obligated ratepayer to pay \$80/MWh while those same contracts are depressing the value of the market.

<sup>2</sup> While the report refers in broad terms to "renewable energy" it must be understood that (with the exception of some pre-existing hydro capacity) in the present term "renewable energy" and any mandates thus applied have meant "utility scale wind energy" in MI. While we understand that some types of hydroelectric and biomass can serve as baseload, there are few indications that either technology is poised to substantially increase its market share. Likewise utility scale solar. Thus in the matter before us, the issue is essentially whether MI continues to mandate higher percentages of industrial scale wind generation.

dispatchable generators of firm capacity and non-dispatchable generators of low capacity value. Viewed thusly, the question is no longer “what is the correct ratio of renewable energy relative to existing thermal generation” but rather “what is the correct percentage of non-dispatchable generators of low capacity value”.

***3. In the scenarios discussed in the report, from a technical perspective, it would be possible to meet increased RPS targets of as much as 30% (or perhaps higher) from resources located within the State***

This wholly depends upon ones assumptions. Since high-percentage mandates of non-dispatchable generators of low capacity means primarily wind generation in MI, wind’s low Capacity Factor (CF) immediately becomes a technical wall that is impossible to overcome practically.

MI wind has a 2013 annualized measured CF in 2013 of only 25%.<sup>3</sup> For ease of illustration I will assume that improvement in technology, etc. manage to drive that average CF to 30%. Thus to achieve a 30% net annual wind energy mandate from a technology that at best can only deliver 30% of its nameplate capacity over the course of a year, MI would need to mandate construction of new wind generation roughly equal to 100% of our current generating fleet. But the minute-by-minute output of that generation will vary from near 0 to near 100%. Therefore, during those windiest times, almost all generation in MI would be coming from wind. Wind operators would need to either massively curtail wind generation at very high expense or export tremendous quantities of energy to other states in MISO. But every other state in MISO also has groups lobbying for extremely high mandates of non-dispatchable generators of low capacity. It is not reasonable to assume those states will be able to absorb excess MI wind capacity at the same time they struggle to manage their own.

The only other option would be to force all existing thermal generation in MI to ramp down to zero but to remain able to spring back to high output as soon as the weather patterns change. And this is the insurmountable technical hurdle: MI’s 54% coal generation and 30% nuclear fleet cannot ramp down to zero. Many coal generators reaches an emissions barrier at the 40% down ramp scenario. And ramping down nuclear encounters another perverse effect: turning down nuclear avoids no emissions and saves absolutely trivial amounts of fuel.

Thus to achieve 30% wind penetration, MI ratepayers would also need to bear the cost of converting the balance of our existing thermal fleet to Gas Combined Cycle Turbines<sup>4</sup>. Further, MI would then no longer have any fuel price hedge and be absolutely NON-diverse in generating technologies. The State would be held hostage to the price of one commodity-natural gas.

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<sup>3</sup> Calculated from EIA generation reports against installed AWEA’s Wind Industry Marketing Report’s reported wind capacity and extrapolated to year’s end base by factoring ins historical seasonal generation variation.  
1380GWh/988 MW installed, 1/1/2013-7/31/2013

<sup>4</sup> ...which would often be forced to operate in much less efficient CT mode.

There is also an additional economic hurdle. By forcing high levels of “must take” “renewables” into the grid at gas and coal generation’s expense, it becomes exceedingly difficult for those requisite fossil plants to remain economically viable.<sup>5</sup> At some point those generators-which serve as *de facto* storage for higher penetration renewable generation-must be paid to stand by. In other words, these generators will not be paid for the energy produced but rather to stand by to furnish the firm capacity the non-dispatchable generators do not possess. Thus the ratepayers pay twice.

The 30% scenario above has another flaw. Mandating 30% “renewable energy” of net annual generation ignores the substantial diurnal and seasonal variations in demand. While we may require 12,500MW of generation as an annual average, this may drop to half that rate in spring and fall, especially at night, which historically is when wind produces in most abundance. Thus MI may have to both shutdown all thermal generation and simultaneously curtail 50% of wind at those times of the year. Such a scenario is economically and technically preposterous<sup>6</sup>. And again, dumping the excess generation into MISO as a “magic black box” solution to overcapacity encounters three additional hurdles.

1. Those states would, under the scenario above, also be experiencing low demand for generation.
2. Every other state in MISO is being similarly pressured to adopt 30% or higher “renewable energy” mandates. It is not reasonable for policy makers to assume that MI would be the only state to actually achieve such a high penetration.
3. The cost of adequate transmission to manage such massive regional flows of intermittent generation may actually exceed the cost of the generators themselves, if it isn’t perhaps even technologically unfeasible.<sup>7</sup>

Finally, not accounting for transmission upgrades and flexible generating capacity additions necessary to achieve such a high penetration, MI would need to force ratepayers to construct ~7,000 1.8 MW turbines, or one for every 5 square miles in the Lower Peninsula. The cost for erecting 12,500MW of wind turbines alone would exceed \$28 billion using typical installed costs.

For \$28 billion MI could build 5,000MW of emission free nuclear generation on existing brownfields or existing coal plant locations, all near points of demand. This eliminates massive quantities of new transmission with its attendant high cost and environmental impact. And nuclear enjoys low, stable fuel costs.

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<sup>5</sup> Consider ISO-NE Wind Integration Study by GE who modeled varying penetrations of wind energy: “ It is unclear, given the large decrease in energy market revenues for natural-gas-fired resources, whether these units would be viable and therefore continue to be available to supply the system needs under this scenario.”

<sup>6</sup> Particularly since wind cannot serve as voltage or frequency regulation or other ancillary market services.

<sup>7</sup> [http://www.uwig.org/summary\\_dena\\_grid\\_study\\_ii.pdf](http://www.uwig.org/summary_dena_grid_study_ii.pdf)

Further, at current installed costs, \$28 billion could replace virtually every coal plant in MISO with Gas Combined Cycle Turbines, thereby reducing CO2 emissions by at least 50% and eliminating PM2.5 and Hg emissions from coal generation across the entire Midwest.

- 4. Also as a legal matter, Michigan's current RPS limits on where renewable energy could be located was characterized as unconstitutional in a federal circuit court of appeals decision issued on June 7, 2013. To date, no party has directly challenged the constitutionality of Michigan's current law.***

IICC concurs. We have petitioned the administrative court overseeing MPSC rate cases to halt further approvals of instate generation mandated renewable energy contingent proceedings until the ratepayers constitutional rights are restored. IICC reminds the legislative and executive branches of the State of Michigan that they have sworn an oath to uphold the US Constitution and hereby repeat our demand for relief.<sup>8</sup>

- 5. During the years Michigan's RPS has been in place, the price of the lowest-cost renewable resource, wind, has declined from over \$100 per MWh in 2009 to \$50 - \$60 per MWh now.***

The discussion of wind PPA price histories does not belong in a section entitled **Cost**.

It is critical to distinguish between *cost* and *price*. There is no correlation between the price of a wind energy PPA and the cost to generate that electricity. A PPA does not reveal many direct and indirect costs to ratepayers like the Federal PTC/ITC, Section 1603 grants, accelerated depreciation, socialized renewable energy transmission costs nor the fact that wind energy is produced at times of low demand and thus low value.<sup>9</sup> While the PPA price may be some measure of the relative ratepayer impact from wind project to wind project, it does not reveal the costs borne by that other entity: taxpayers. Unfortunately, they are one and the same.

Further, this simplified LCOE comparison deflates the true value of solar and biomass. Solar output generally coincides with demand and biomass is dispatchable. That makes both far more able to exploit times of high market pricing.

- 6. The predominant reason for the drop is the significant increase in wind farm capacity factors from the high 20s in 2008 to the mid-40s more recently.***

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<sup>8</sup> <http://iiccusa.org/uncategorized/the-illegality-of-pa295-instate-generation-requirement/>

<sup>9</sup> [http://scienceandpublicpolicy.org/images/stories/papers/reprint/High\\_Cost\\_and\\_Low\\_Value\\_of\\_Electricity\\_from\\_Wind.pdf](http://scienceandpublicpolicy.org/images/stories/papers/reprint/High_Cost_and_Low_Value_of_Electricity_from_Wind.pdf)

IICC would be pleased to see data showing significant measured improvement in wind Capacity Factors (CF) as opposed to projected performance as stated by developers. Historically wind developers have overestimated wind performance.<sup>10</sup>

For the past three years wind developers across the state have projected +30% wind CF yet MI's measured wind CF has remained stable. In fact, despite a relatively high percentage of "low wind" turbines on 100 meter towers in operation since 1/1/2013, MI's average CF remains flat at 25% based on EIA generation data and AWEA reported installed capacity.

Secondly, IICC is aware of the Pheasant Run wind PPA predicting a CF in the mid 40's. We remain dubious. The only means IICC sees of Pheasant Run achieving a measured CF in the mid 40% range is if the turbine manufacturer has de-rated the nameplate capacity to artificially inflate the apparent CF. With such subterfuge a CF of 100% or more is achievable, though installed costs would surely suffer, although efficiencies in turbine construction or depressed commodity pricing of steel may mask the overall effect. And if such high CF's are available in MI's regionally anemic wind resource, one would expect places like IA , MN and the Dakota's to be pushing in to the 50's and 60's but they are not.

What is NOT clear is who ultimately pays if a wind developer signs a fixed price Power Purchase Agreement with a Michigan utility that assumes a high CF that does not materialize. Since many wind developers like DTE, CMS, Invenergy, NextEra and Exelon are likewise utilities, any losses will be borne by ratepayers somewhere.

Finally, as wind penetration increases, CF's can decrease for a host of reasons:

*A review of annual fleet-wide capacity factor data for the United States, Denmark, and Spain, spanning 1999 through 2010, demonstrates the resulting performance improvements, to some degree (Figure 5). Specifically, data for the United States and Denmark demonstrate overall increases in average fleet-wide capacity factors on the order of 20% or more over this period. However, such data are often confounded by inter-annual wind resource variability, dispatch curtailment due in part to transmission congestion, and long-term trends toward siting projects in lower wind resource areas as the best resource sites are developed. The latter variable has been especially significant in Spain, where fleet-wide capacity factor data show relatively flat—and to some extent, declining—capacity factors as a result of new developments being pushed to lower quality wind resource areas, simply because they are the only readily developable sites that remain.<sup>11</sup>*

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<sup>10</sup> <http://www.atmos-chem-phys.net/12/9687/2012/acp-12-9687-2012.pdf>

<sup>11</sup> [http://www.ieawind.org/index\\_page\\_postings/WP2\\_task26.pdf](http://www.ieawind.org/index_page_postings/WP2_task26.pdf)

**7. EIA reports current levelized costs for other generation characterized as renewable under Michigan's current RPS: Wind - \$87 per MWh**

EIA assumes a 30 year lifecycle for wind. MI utilities like DTE report only 20 years. EIA also includes the effect of accelerated 5 year depreciation. Together those add \$20/MWh to wind's LCOE.<sup>12</sup>

**8. Even the entity that develops these estimates notes that levelized cost estimates are not the only way to estimate costs and does not attempt to quantify other costs and benefits that may be applicable.**

In fact EIA says:

*"The duty cycle for intermittent renewable resources, wind and solar, is not operator controlled, but dependent on the weather or solar cycle (that is, sunrise/sunset) and so will not necessarily correspond to operator dispatched duty cycles. As a result, their levelized costs are not directly comparable to those for other technologies..."<sup>13</sup>*

In simple terms, one cannot compare the LCOE of generators with no firm capacity with those that do. They are not interchangeable.

But sadly, as Glenn Schleede notes:

*"Wind industry officials and lobbyists continue to understate greatly the full, true cost of electricity from wind and have been successful in creating a false "popular wisdom" about wind energy."<sup>14</sup>*

**9. For instance, if renewable generation is compared to replacing existing generation, it will often appear more expensive. However, if renewable generation is compared as an alternative to building new types of generation, it will often appear to be less expensive.**

Non-dispatchable intermittent generators of low capacity value cannot replace dispatchable generators. Since they are not interchangeable, comparing their levelized costs is an economic absurdity and is "meaningless".

Consider MIT's Joskow:

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<sup>12</sup> See ATI Hidden Cost of Electricity, Ibid.

<sup>13</sup> [http://www.eia.gov/forecasts/aeo/pdf/electricity\\_generation.pdf](http://www.eia.gov/forecasts/aeo/pdf/electricity_generation.pdf)

<sup>14</sup> [http://scienceandpublicpolicy.org/images/stories/papers/reprint/High\\_Cost\\_and\\_Low\\_Value\\_of\\_Electricity\\_from\\_Wind.pdf](http://scienceandpublicpolicy.org/images/stories/papers/reprint/High_Cost_and_Low_Value_of_Electricity_from_Wind.pdf)

power

*Levelized cost comparisons overvalue intermittent generating technologies compared to dispatchable base load generating technologies. These comparisons also typically overvalue wind generating technologies compared to solar generating technologies. Integrating differences in production profiles, the associated variations in the market value of the electricity at the times it is supplied, and the expected life-cycle costs associated with different generating technologies is necessary to provide meaningful economic comparisons between them. This market-based framework also has implications for the appropriate design of procurement auctions created to implement renewable energy procurement mandates, the efficient structure of production tax credits for renewable energy, incentives for and the evaluation of electricity storage technologies and the evaluation of the additional costs of integrating intermittent generation into electric power networks.<sup>15</sup>*

MIT's Schmalensee concurs:

*"...It follows that discussions of "grid parity" based on comparisons of the levelized cost per kilowatt-hour (kwh) of electric energy (generally abbreviated LCOE) from wind or solar power with average wholesale prices **have little economic or commercial meaning.**"<sup>16</sup>*

Put in layman's terms, "If EPA closes every coal fired plant in MISO, how many wind plants would need to be built and what is the LCOE of those plants?" The answer? Infinite.

Why?

As DTE's Irene Dimitry stated last fall at the Ann Arbor SPARKS forum<sup>17</sup>: "I sat in the control room and watched what wind was giving us in July and August and it was one big goose egg."<sup>18</sup>

So how does one compare the cost of a generation technology that cannot reliably satisfy the most critical need of the grid to those that can? It is impossible without adding a percentage of the costs necessary to keep reliable and dispatchable generators in operation to guarantee firm capacity.<sup>19</sup>

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<sup>15</sup> [http://cadmus.eui.eu/bitstream/handle/1814/18239/RSCAS\\_2011\\_45.pdf?sequence=1](http://cadmus.eui.eu/bitstream/handle/1814/18239/RSCAS_2011_45.pdf?sequence=1)

<sup>16</sup> <http://www.windturbinesyndrome.com/wp-content/uploads/2013/10/SSRN-id2336374.pdf>

<sup>17</sup> <http://www.annarborusa.org/events/event-videos/michigan-energy-videos>

<sup>18</sup> Perversely for renewable energy boosters, using direct LCOE comparisons that discount time of delivery devalue solar by 32% relative to wind <http://www.windturbinesyndrome.com/wp-content/uploads/2013/10/SSRN-id2336374.pdf>

<sup>19</sup> <http://www.atinstitute.org/wp-content/uploads/2012/12/Hidden-Cost.pdf>

**10. One of the most important variables that accounts for different cost estimates for solar and wind generation in the future is estimated fuel costs for other types of generation.**

This statement continues to falsely argue that non-dispatchable generation can be compared to dispatchable in a meaningful way without adding some portion of the cost of maintaining the dispatchable fleet of thermal generators. But it nevertheless raises a good point: the only real value wind generation brings is measured by the price of the fuel saved. Wind generation saves none of the fixed costs of maintaining the thermal fleet. It essentially only saves some of the fuel costs. Currently gas and coal fuels are valued at \$25-35/MWh. Thus wind's EIA LCOE of \$87/MWh brings a value to the system of only \$25-35/MWh in fuel savings.

Properly understood, in the face of EPA-driven closings of baseload coal plants, MI regulators and policymakers will be left with only two choices: replace that coal capacity with nuclear or gas fired generation. They alone possess firm dispatchable capacity.

Then comes an question: "Do we wish to save some natural gas fuel and CO2 emissions by adding wind to that gas generation?" If so, the current ratio is \$110.00/MWh unsubsidized wind to save \$35/MWh in natural gas fuel.

But this hypothetical statement is false: "As baseload coal closes we can replace it with gas, nuclear **OR** wind." Because wind has almost 0 capacity value (2.7% in MISO<sup>20</sup>) it cannot fill that role.

Evidence that MISO wind brings essentially 0 capacity is the July 2013 report from, MISO's Independent Market Monitor, Potomac Economics:

*"Finally, we find that the capacity credit for wind resources and a large share of the demand response resources are likely overstated under MISO's current rules in Module E, which can contribute to understated capacity prices. **The current capacity credit for wind is likely more than three times higher than a reasonably conservative capacity credit.** Such a credit should be based on the minimum output level one could expect under peak summer conditions."*

And finally, MISO's over estimation of the wind's firm capacity of 13.3% rather than Potomac's preferred 2.7%<sup>21</sup> has led to an over statement of MISO's reserve margins as seen in this table<sup>22</sup>:

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<sup>20</sup> [http://www.potomaceconomics.com/uploads/midwest\\_reports/2012\\_SOM\\_Analytic\\_Appendix\\_Final.pdf](http://www.potomaceconomics.com/uploads/midwest_reports/2012_SOM_Analytic_Appendix_Final.pdf)

<sup>21</sup> "This methodology would produce an average capacity credit for the wind resources of 2.7 percent for PY 2013–14. We recommend that MISO consider this as an alternative for granting UCAP credits for wind resources in future"

[http://www.potomaceconomics.com/uploads/midwest\\_reports/2012\\_SOM\\_Analytic\\_Appendix\\_Final.pdf](http://www.potomaceconomics.com/uploads/midwest_reports/2012_SOM_Analytic_Appendix_Final.pdf)

<sup>22</sup> Ibid.

**Table A1: Capacity, Load, and Reserve Margins by Region  
Summer 2013**

	MISO	IEM Base Case		IEM Hi Temp Case	
		Full DR	Realistic Wind + DR	Full DR	Realistic Wind + DR
<b>Load</b>	96,193	96,193	96,193	101,941	101,941
<i>High Load Increase</i>	-	-	-	5,748	5,748
<b>Capacity</b>	111,149	111,149	109,776	106,249	104,876
<i>BTM Generation</i>	3,394	3,394	3,394	3,394	3,394
<i>Realistic Wind Adj.</i> <sup>1</sup>	-	-	(1,373)	-	(1,373)
<i>Hi Temp Derates</i> <sup>2</sup>	-	-	-	(4,900)	(4,900)
<b>Demand Response</b>	4,661	4,661	2,331	4,661	2,331
<b>Imports</b>	6,119	1,622	1,622	1,622	1,622
<i>Firm</i>	1,622	1,622	1,622	1,622	1,622
<i>Non-Firm</i>	4,497	-	-	-	-
<b>Margin (MW)</b>	25,736	21,239	17,536	10,591	6,888
<b>Margin (%)</b>	28.1%	23.2%	18.7%	10.9%	6.9%

Note: All values are MW unless noted.

1 Adjustment for using a more conservative estimate of wind output.

2 Based on an analysis of quantities offered into the day-ahead market on the three hottest days of 2012 and on August 1, 2006. Quantities can vary substantially based on ambient water temperatures, drought conditions, and other factors.

**11. The higher the future cost of various fuels is projected to be, the better renewable energy costs will be estimated to be in comparison.**

Again, they cannot be directly compared, irrespective of fuel cost unless enough fossil generation is added to the wind generation to make them both dispatchable. Consequently, the higher the future cost of fuels, the higher the cost of any combination of majority fossil/minority wind becomes.

**12. MISO reports that to date, wind has not been a factor in any system-wide reliability problems and has not resulted in any significant reliability concerns, due in part to its ability to manage the system to provide flexibility when resources (both renewable and non-renewable) do not behave as predicted.**

This is directly contradicted by the chart from Potomac Economics above. Reserve margins have been inflated in part by MISO assigning too high of a Capacity Value to wind and MISO is in fact reserve margin constrained. Additional penetration of non-dispatchable resources without additional firming resources (CT or CCGT) will make this worse.

**13. MISO reports that it is not aware of backup capacity costs specifically attributable to the intermittent nature of wind power.<sup>23</sup>**

<sup>23</sup> Again, see Potomac Economics SOM Report as reference above.

There are two issues with this statement.

First, “backup” is not the correct term. In fact, a clarifying phrase might be instructive: “Backup is for when the wind is not blowing, balancing is for the times it is.”

Wind’s intermittency places demands upon fossil generators that other dispatchable generators do not-increased O&M and fuel. They also parasitize those generators long term revenue stream. Those costs must be accounted for and apportioned to wind’s account

As MIT concludes:

*“In order to accommodate high levels of intermittent generation, a power system will generally need to alter its operations, perhaps by finding ways to make demand more responsive to system conditions, and/or to deploy a more flexible fossil-fueled generation fleet”.*<sup>24</sup>

Increasing penetrations of wind may require more backup capacity or demand response to handle times when intermittent generators’ output is low or even zero if those times occur when system demand is high. None of these is without cost and those costs should appropriately be added to the intermittent generators’ account.

But at a certain wind penetration there is no longer adequate down ramp ability. Coal and nuclear are sharply limited in down ramp ability relative to gas turbines. So is new generation required to “back up” new wind installations? No. But flexible and ample generation must always be available to both ramp up and down as wind’s output varies. And MISO is approaching that limit.

Secondly, even if MISO has no additional wind generation enter their market, most existing flexible fossil generation will still need to be maintained and kept in service. And when that flexible generation obsolesces, it still needs to be replaced, despite the addition of billions of dollars of intermittent wind generation.

There is a third ramification of high wind penetration scenarios even when ample flexible generation exists to accommodate intermittents. Consider this statement from GE’s New England Wind Integration Study which modeled wind penetration up to 24%.<sup>25</sup>

*“In effect, [a high penetration wind scenario] would represent a major shift in the fuel mix for the region. It is unclear, given the large decrease in energy market revenues for*

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<sup>24</sup> <http://www.windturbinesyndrome.com/wp-content/uploads/2013/10/SSRN-id2336374.pdf>

<sup>25</sup> It should be noted that ISO-NE is currently 50% gas generation, far higher than MISO.

***natural-gas-fired resources, whether these units would be viable and therefore continue to be available to supply the system needs under this scenario.”<sup>26</sup>***

GE’s study assumes that flexible gas generation remains in place for the life of the wind installations but can make no guarantee that the gas generators would remain economically viable as wind parasitizes the gas generators revenue stream. At this level of penetration the gas generators would likely require payment in the form of capacity payments. This is occurring in Germany<sup>27</sup> and California<sup>28</sup>.

The Congressional Research Service concurs:

***“MISO, PJM, and ERCOT each have different market designs and different means to address resource adequacy and reserve margin issues. Although fundamentally very different, both MISO and PJM operate a capacity market that is designed to provide a source of income to generators that may not sell enough electricity to be economically viable, but are necessary to RTOs in order to satisfy target reserve margins and ensure system reliability. As more variable energy sources are added to an RTO system, the premium for reserve capacity could rise. If this occurs, generators providing capacity to meet resource adequacy requirements may see more revenue coming from capacity payments and less revenue from energy sales. As a result, the revenue profile for power generators may change.”<sup>29</sup>***

So does every wind generation installation require new dedicated “backup”? Not if adequate flexible generation already exists within the ISO. But that is not the point.

Unlike any dispatchable source of generation, wind (and solar) cannot replace those dispatchable plants. And at a certain level of penetration inflexible baseload plants would need to be replaced with flexible gas plants to permit higher penetration of wind to occur.

***14. However, there has been significant transmission built and planned that has helped facilitate the introduction of wind power where it might not otherwise have been supported. An example of this is the large build in the Michigan Thumb.***

Yet Potomac Economics reports significant transmission constraints at the Iowa hubs. This can be witnessed in real time.<sup>30</sup>

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<sup>26</sup> <http://www.iso->

[ne.com/committees/comm\\_wkgrps/prtcpnts\\_comm/pac/mtrls/2010/nov162010/newis\\_iso\\_summary.pdf](http://www.iso-ne.com/committees/comm_wkgrps/prtcpnts_comm/pac/mtrls/2010/nov162010/newis_iso_summary.pdf)

<sup>27</sup> <http://www.bloomberg.com/news/2013-04-23/power-plant-capacity-payments-inevitable-in-germany-ubs-says.html>

<sup>28</sup> <http://www.cpuc.ca.gov/NR/rdonlyres/E2A36B6A-977E-4130-A83F->

[61E66C5FD059/0/CPUCBriefingPaperonLongTermResourceAdequacyBriefingPaperFebrua.pdf](http://www.cpuc.ca.gov/NR/rdonlyres/E2A36B6A-977E-4130-A83F-61E66C5FD059/0/CPUCBriefingPaperonLongTermResourceAdequacyBriefingPaperFebrua.pdf)

<sup>29</sup> [http://assets.opencrs.com/rpts/R42818\\_20121107.pdf](http://assets.opencrs.com/rpts/R42818_20121107.pdf)

<sup>30</sup> [https://www.misoenergy.org/LMPContourMap/MISO\\_MidWest.html](https://www.misoenergy.org/LMPContourMap/MISO_MidWest.html)

**15. Renewable energy costs would be at EIA's current average estimates, however, given Michigan's recent experience with wind contracts coming in at lower prices than EIA estimates, this assumption is considered to be conservative.**

See above. EIA evaluates cost. Cost cannot be conflated with price as seen in PPA's.

**16. Under these assumptions, all evaluated scenarios (ranging from 15% by 2020 to 30% by 2035) are achievable.**

Not readily nor affordably, as noted above.

**17. Renewable energy targets, like all types of generation planning, are often informed by estimates of future load levels or future sales levels. In particular, it is important to ensure enough energy is available to satisfy the "peak" demand, or widespread instability can result. Michigan's peak load tends to occur during the hottest weekday of the summer. That is based on the confluence of several factors that increase load. First, in a daily cycle, load is higher during the day than at night. Second, load is lower on the weekends. Third, there are also seasonal cycles. Load in Michigan is highest in the summer and lower in the spring and fall. Electricity load is also influenced by the weather.**

Table 3: Peak Load Estimates (GW)

Year	Peak Load Growth Estimate Percentage		
	1.2%	1.0%	0.5%
2006	23.8	23.8	23.8
2010	24.9	24.7	24.2
2015	26.4	26.0	24.8
2020	28.1	27.3	25.4
2025	29.8	28.7	26.1
2030	31.6	30.2	26.8

Comparing these numbers to the potential numbers for each type of renewable energy in Table 2, shows that there is adequate renewable energy available within the state from a technical perspective to support a wide range of renewable targets.

IICC objects strongly to this analysis. As discussed earlier, wind has a MISO Capacity Value- the measure of its ability to meet peak load needs- of only 2.7% according to IMM. For all practical purposes that is 0. Worse, IMM also reports that wind generation is "sharply inverse to demand" in MISO. So even when wind is there, it is there at the wrong time-namely: off peak. Thus any discussion that included wind as a means of adding new peak load capacity is incorrect.

**18. Therefore, there are no technical or reliability issues that place a hard limit on the amount of renewable energy that could be generated.**

Again, this is false. Wind penetration is limited by MI thermal generators down-ramp ability and the economic limits for existing gas (and to a limited degree, coal generators) to remain economically viable as high wind penetrations steal their revenue stream.

**19. First, from a legal perspective, Michigan's local governments address siting of all types of electrical generation, including renewables, so local governmental rules restricting such items could reduce the available sites.**

IICC concurs. It is our firm conviction that attempting to mandate penetrations of wind energy much beyond our existing mandate will increase occurrences of protest and lamentably result in civil disobedience. To date, multiple officials have been recalled from office due to wind energy zoning battles. Township and county trustees and commissioners are routinely targeted by wind developers as lease prospects. Just consider Fairgrove Township in the Thumb where 9 of 13 elected and appointed officials own wind leases yet openly deliberate upon wind energy zoning language from which they will receive direct financial benefit-with full blessing of the township counsel who concurrently serves as elected treasurer. Behavior such as this is rending the social structure of our rural communities while depleting private wealth as citizen's seek to protect both their way of life and to seek protection from conflicted officials.

**20. "...our results suggest that utility-scale wind energy generation is not without adverse health impacts on nearby residents"(page 338) and recommends that "on the basis of our data, suggest that setback distances need to be greater than 2 km in hilly terrain"**

**"...it would be advisable for any new project to attempt to maintain a mean sound level of 40 dBA or less outside all residences as an ideal design goal."**

IICC heartily concurs. These setbacks and noise limits are consistent with the 1974 EPA Levels document<sup>31</sup>, WHO European Night time noise guidelines<sup>32</sup>, Kemperman-James<sup>33</sup>, Rob Rand, INCE<sup>34</sup>, and Hessler-Hessler<sup>35</sup>. It is also consistent with the draft report prepared by Dr. Jerry

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<sup>31</sup> <http://www.nonoise.org/library/levels74/levels74.htm>

<sup>32</sup> [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0017/43316/E92845.pdf](http://www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf)

<sup>33</sup> <http://www.windturbinesyndrome.com/wp-content/uploads/2008/11/kemperman-james-10-28-08.pdf>

<sup>34</sup> [http://iiccusa.org/wp-content/uploads/2011/03/Rand\\_to\\_Riga\\_Planning\\_Commission.pdf](http://iiccusa.org/wp-content/uploads/2011/03/Rand_to_Riga_Planning_Commission.pdf)

<sup>35</sup>

<http://www.naruc.org/Grants/Documents/Final%20full%20MN%20SERCAT%20rep%20with%20NARUC%20cover%20Hessler.pdf>

Punch<sup>36</sup>, et. al., on behalf of the now disbanded Technical and Health group. The committee was broken up under mysterious circumstances just prior to the release of the report<sup>37</sup>.

Secondly, wind turbine related adverse health impacts such as those reported in Huron<sup>38</sup>, Missaukee<sup>39</sup>, Mason<sup>40</sup> and Delta<sup>41</sup> counties was studied by USDOE<sup>42</sup> in the early 1980's. The source was found to be impulsive low frequency noise from the turbines. Although the turbines studied at the time were "downwind" type turbines, the author of the report affirmed<sup>43</sup> this year that "modern" upwind turbines are capable of precisely the same noxious effect.

As wind development increases in MI, litigation will abound if well-established science regarding noise and human health impacts are ignored. As plaintiffs begin to prevail, wind energy's already uncompetitive price relative to real value will only worsen as wind plant operators are forced to curtail production to protect human health.

***21. Michigan's current RPS provisions regarding where renewable energy could be located were characterized as unconstitutional in a federal circuit court of appeals decision issued on June 7, 2013.***

IICC concurs<sup>44</sup>. The perversity of this ruling is that the 7<sup>th</sup> Circuit ruled that MI ratepayers are obligated to pay for wind transmission from the Prairie State to eastern markets while simultaneously being prevented from acquiring that much cheaper<sup>45</sup> renewable energy and applying to our current mandate.

***22. In contrast, some commenters argued that the ability to import renewables from other areas that may be cheaper would have economic benefits overall by lowering the cost of power, and that these broad benefits could outweigh the direct economic development benefits of restricting generation.***

Insert "alleged" between "the" and "direct economic benefit" and our objection is removed.

***23. The most common way to estimate the relative cost for renewables is to compare new renewable builds to new types of other generation. In doing so, natural gas co-generation is one of the only types of conventional fuel generation that might be more economical than the lower-cost forms of renewable energy. However, if compared to***

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<sup>36</sup> <http://www.oem.msu.edu/userfiles/file/Resources/WindandHealthReport.pdf>

<sup>37</sup> <http://aeinews.org/archives/2006>

<sup>38</sup> [http://www.michigansthumb.com/articles/2012/02/17/news/local\\_news/doc4f3f39f48b63b527339868.txt](http://www.michigansthumb.com/articles/2012/02/17/news/local_news/doc4f3f39f48b63b527339868.txt)

<sup>39</sup> <http://www.windaction.org/posts/34721-mcbain-family-sues-wind-turbine-developer#.UlBWVDAN8E>

<sup>40</sup> <http://www.grbj.com/articles/77098-legal-squall-hits-lake-winds-energy-park>

<sup>41</sup> <http://www.dailypress.net/page/content.detail/id/544125/Problems-with-wind-farm.html?nav=5005>

<sup>42</sup> <http://www.nrel.gov/docs/legosti/old/1166.pdf>

<sup>43</sup> <http://www.theaustralian.com.au/national-affairs/policy/turbine-dangers-known-since-87/story-fn59nokw-1226676190761#mm-premium>

<sup>44</sup> <http://iiccusa.org/uncategorized/the-illegality-of-pa295-instate-generation-requirement/>

<sup>45</sup> <http://emp.lbl.gov/sites/all/files/lbnl-6356e.pdf>

*existing generation, renewables will often appear more expensive because many of the fixed costs relating to existing generation have already been paid.*

The only reasonable measure of the value a given type of generation brings is to measure it against that which it can completely replace. In the case of wind and solar, it can only replace the fuel consumed in conventional plants since it provides almost no firm capacity. This makes the comparison simple: current LCOE of wind + necessitated transmission + subsidies/tax credits versus the cost of fuel (and any emissions) saved. Thus we establish the true value of intermittent and non-dispatchable generation.

*Again, wind generation is simply a high cost accessory one may choose to add to existing gas or coal generators that will save some fuel.*

Unfortunately, even by that metric, wind's incremental emission avoidance resulting from pairing it with Gas Combined Cycle Turbines (CCGT) costs roughly 10x the price-per-additional-unit-of CO2 avoided compared with replacing coal generation with CCGT directly. And adding wind to CCGT avoids no additional PM2.5 or Hg emissions because gas CCGT emits essentially none of those pollutants. But adding wind to CCGT adds 50% to the cost of electricity while reducing the internal efficiency of the CCGT plant. And in the event natural gas prices rise substantially, nuclear becomes the low cost provider of both electricity and emission avoidance.<sup>46</sup>

Consider: to date, MI has spent roughly \$2.5 billion constructing new wind generation plus transmission. This chart shows a simple cost/benefit analysis of that \$2.5 billion wind investment relative to a similarly sized investment in CCGT:

<u>Generation Type</u>	<u>Effective annual capacity</u>	<u>tons of CO2 avoided per year*</u>	<u>\$/ton CO2 avoided</u>
Wind	250MW (25% CF)	1.6 million, if wind replaces gas at 90% eff*	\$ 300.00
CCGT	2250MW (90%CF)	12 million, assuming gas replaces coal	\$ 27.00

*\*Assumes MI wind has displaced ONLY MI gas generation rather than other MISO states.. While wind may displace coal generation, in all likelihood MI wind more often displaces gas. This number also credits wind with fuel savings. Since CCGT has no Hg or PM2.5 emission, there is no incremental reduction of those 2 pollutants by adding wind to CCGT.*

<sup>46</sup> Schmallensee "One can debate whether it is desirable to subsidize renewable generation at all, since doing so is clearly more costly than taxing emissions of carbon dioxide as a means of slowing climate change and is a similarly inefficient approach to reducing local air pollution. But there can be no doubt that encouraging renewable generation when its marginal value to the electric grid is negative raises costs to society, but that is what both the federal production tax credit (for wind) and state RPS programs (for both wind and solar) do..."  
<http://www.windturbinesyndrome.com/wp-content/uploads/2013/10/SSRN-id2336374.pdf>

Further, renewables do not just “appear” more expensive. They are more expensive, both in terms of cost of energy and value of that energy due to time of delivery issues.

(I believe “natural gas co-generation” is a typo and should read “Combined Cycle Gas Turbine”.)

**24. According to EIA, during the 2012 – 2016 time period, U.S. planned generator additions are 952 generators with a net summer capacity of 76,616 MW. Renewables comprise about 35% of the planned new capacity**

It is illogical to first refer to “summer capacity” and then suggest in the same paragraph that 35% of that capacity would be from renewables. While that may be true on a nameplate basis, in terms of real on-peak capacity, as stated above, the peak summer capacity of wind energy (which will certainly be the bulk of the renewables contribution) per MISO’s IMM is almost 0, 2.7%.

**25. Renewable energy proponents often point to the volatility and uncertainty of fuel prices as rationale to increase reliance on renewable energy.**

**Moreover, the price of renewable generation does not depend on fuel costs and, therefore, considered to be more predictable.**

1. Since wind generators generate electricity rather than produce methane, the more critical question is not wind’s direct impact upon future natural gas pricing but rather wholesale electricity rates and the impact natural gas fuel prices has upon them.

Michigan’s 2013 reported capacity weighted average wholesale wind price is \$80/MWh.<sup>47</sup> That price is fixed for the life of those 20 year contracts and will never come down<sup>48</sup>. Yet MISO’s 2012 average wholesale price of electricity was only \$28.56/MWh<sup>49</sup>. MI wind PPA’s have thus obligated ratepayer to pay a \$51.44/MWh premium for that wind energy for the life of the contract. This is \$112 million annually assuming a 25% wind fleet Capacity Factor or \$135 million assuming a yet to be witnessed 30% CF.

The only way to lower the capacity weighted average price for wind in MI would be to add more wind capacity at a significantly lower price than the current average. But with 1,000MW nameplate currently online at a fixed price of \$80/MWh, even doubling MI’s installed wind capacity to 2,000MW at an unrealistically low MI PPA price of \$40.00/MW would still leave the average aggregate capacity weighted wind PPA at \$60.00/MWh. This is still more than twice

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<sup>47</sup> [http://www.michigan.gov/documents/mpsc/implementation\\_of\\_PA295\\_renewable\\_energy\\_411615\\_7.pdf](http://www.michigan.gov/documents/mpsc/implementation_of_PA295_renewable_energy_411615_7.pdf)

<sup>48</sup> And some may contain annual escalators.

<sup>49</sup> [http://www.potomaceconomics.com/uploads/midwest\\_reports/2012\\_SOM\\_Report\\_final\\_6-10-13.pdf](http://www.potomaceconomics.com/uploads/midwest_reports/2012_SOM_Report_final_6-10-13.pdf)

the average MISO wholesale price of electricity and far above the spot price when time of delivery (off-peak/low demand) is considered.

The only value a wind PPA would then have as a hedge against gas-fired electricity price inflation is if both the price of gas fired electricity and the relative percentage of gas generation in MISO increased to the point that the off peak spot price of electricity regularly exceeded the aggregate new theoretical average price of \$60.00. These conditions seem unlikely.

**Wind proponents may suggest that inasmuch as wind displaces gas fired generation there could be some overall reduction in gas demand. It must be observed that both the American Wind Energy Association<sup>50</sup> and Canadian Wind Energy Association<sup>51</sup> are promoting replacing baseload coal and nuclear with a wind/gas combination. If such policies were adopted by both the US and Canada, there is no question that demand for North American natural gas would skyrocket, thereby increasing upward price pressure and/or volatility in the gas market.**

2. This argument also assumes that wind is the only technology that might be a price hedge against volatile fossil fuel pricing. Nuclear can serve in the same fashion and is dispatchable and emission free. Further, Ontario regularly exports excess hydro capacity to MI. Would not ratepayers be better served by acquiring that clean source of renewable energy under a long term hydro PPA at a far lower cost?
3. This argument also implies that natural gas price volatility will trend up and not down. Yet the (false) consensus in 2008 was that natural gas prices were high and would remain so.
4. Finally, there is a growing body of legal evidence that states with regulated electricity markets like MI may be violating both the Supremacy Clause and the Commerce clause employing long term wholesale PPA's at a price above the regional wholesale value of wind while simultaneously banning out-of-state competitors from participating in the RPS mandate. It is difficult to calculate the future ratepayer impact in the event that a court would void existing wind PPA contracts.<sup>52</sup>

*Bottom line: A more realistic appraisal of long term wind PPA contracts and percentage mandates is that they protect the wind developer/operator from market competition at the ratepayer's expense.*

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[http://web.archive.org/web/20130511225107/http://www.awea.org/learnabout/publications/upload/Baseload\\_Factsheet.pdf](http://web.archive.org/web/20130511225107/http://www.awea.org/learnabout/publications/upload/Baseload_Factsheet.pdf)

<sup>51</sup> <http://www.thespec.com/opinion-story/2226895-wind-energy-is-a-better-deal-for-ontario-than-new-nuclear/>

<sup>52</sup> See attached brief from James Fuscaldo, esq. as well as Steven Ferrey, "Threading the Constitutional Needle with Care," 7 University of Texas Journal of Oil, Gas and Energy Law 59 (2012).

**26. However, natural gas prices have not been stable and an increase in the cost of natural gas could make these plants uneconomic.**

As noted above, renewable energy prices are not stable and have been and remain uneconomic when all measures of value are applied. They cannot exist without State RPS laws creating unconstitutional cartels mandating in-state generation and purchase.

**27. MISO indicates that most of the renewable resource generation on its system is wind generation. It is MISO's finding that wind has not been a factor in any system-wide reliability problems. Contingency reserves have never been deployed due to a drop in wind output.**

See IMM reports referenced above.

**28. ICCUSA comments suggest that wind intermittency is a major cost and reliability issue, but these comments are contradicted by references provided in comments from Union of Concerned Scientists, the DTE/ CMS/ MEGA joint comments, the Michigan Environmental Council and MISO's July 1, Answers to Questions (Attached as Appendix C). Examples of references include**

See IMM reports referenced above. MISO overstates wind's capacity value and underestimates reserve margins.

**29. Wind generation has increased by 30 percent to 3 GW throughout the MISO footprint. MISO's energy market pricing, combined with tax incentives, allowed wind resources to set market prices as low as negative \$20.00 per MWh in certain circumstances.**

Negative pricing events are a signal to market participants reduce generation. But subsidized wind generators can continue to profitably generate at below zero market prices. They are made whole by the Federal Treasury via the PTC. This market distortion is not without ill effect:

"As recently as September 6, 2012 the Public Utilities Commission of Texas Chairman Donna Nelson cautioned policymakers against further subsidies noting that the PTC had undermined Texas reliability:

*"Federal incentives for renewable energy... have distorted the competitive wholesale market in ERCOT. Wind has been supported by a federal production tax credit that provides \$22 per MWh of energy generated by a wind resource. With this substantial incentive, wind resources can actually bid negative prices into the market and still make a profit. We've seen a number of days with a negative clearing price in the west zone of ERCOT where most of the wind resources are installed....The market distortions caused by renewable energy incentives are one of the primary causes I believe of our current resource adequacy issue... [T]his distortion makes it difficult for other generation types to*

*recover their cost and discourages investment in new generation.”*

And:

*“ America’s continued reliance on the PTC subsidy therefore will invariably deter investments in the conventional power generation needed to maintain a reliable electric system. Conventional generation is critical to reliability because wind generation often does not produce energy during times of peak electricity demand, while producing at high levels (and driving negative prices) when demand is low. In recent years, about 85% of total wind capacity has not operated during the peak hours on the highest demand days of the year, on average. Controllable conventional generation is thus needed to backstop wind and ensure the lights stay on.”<sup>53</sup>*

**30. Local Impact (Question 13)**

***Section 29 of Public Act 295 (PA 295) requires that most of the renewable energy needed to meet the requirements of the act be constructed and/or sourced from within Michigan***

Unconstitutional, as addressed above. Thus the report’s analysis is moot.

***31. However, data was not submitted detailing the amount of savings that could be expected from sourcing wind from the west.***

MI’s capacity weighted average wind PPA price is \$80.00/MWh as noted above.

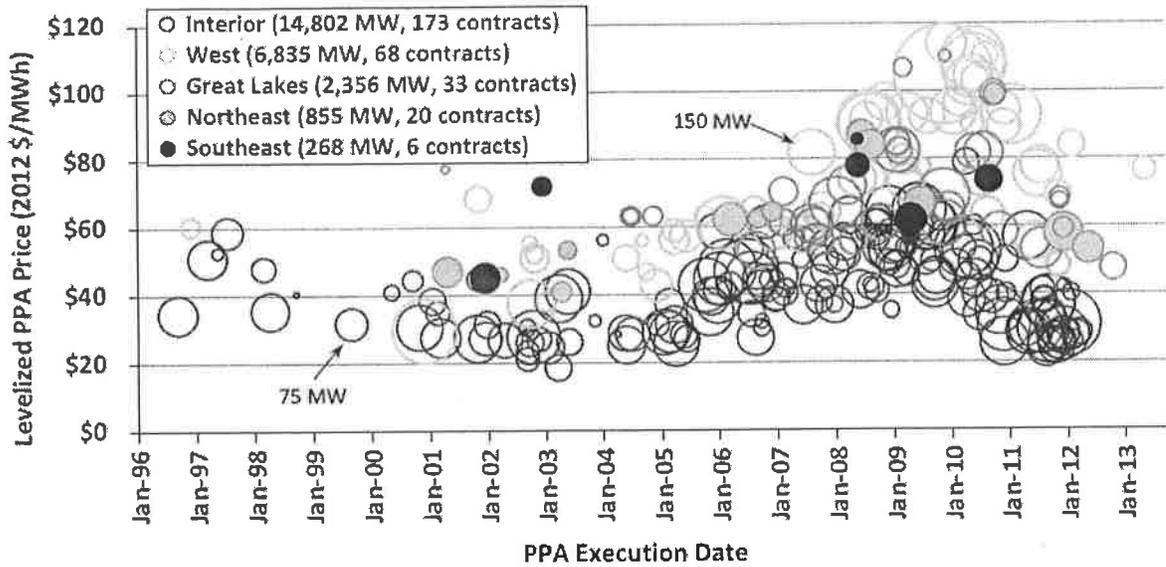
*“The average cost of energy as reflected in power purchase agreements (PPA) for wind is similarly continuing to fall, with the average PPA price signed during 2012 of \$38.34/MWh, down from \$42/MWh for PPAs signed during 2011 and \$60/MWh for PPAs signed during 2010. Regional PPA prices for 2012 range from \$31-\$84/MWh.”<sup>54</sup>*

Note in the next two charts that the Interior regions remain cheaper than the Great Lakes regions at all times:

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<sup>53</sup>[http://www.hks.harvard.edu/hepg/Papers/2012/Negative\\_Electricity\\_Prices\\_and\\_the\\_Production\\_Tax\\_Credit\\_0912.pdf](http://www.hks.harvard.edu/hepg/Papers/2012/Negative_Electricity_Prices_and_the_Production_Tax_Credit_0912.pdf)

<sup>54</sup><http://www.aweablog.org/blog/post/us-department-of-energy-report-wind-power-costs-near-record-low>



Note: Size of "bubble" is proportional to project nameplate capacity.

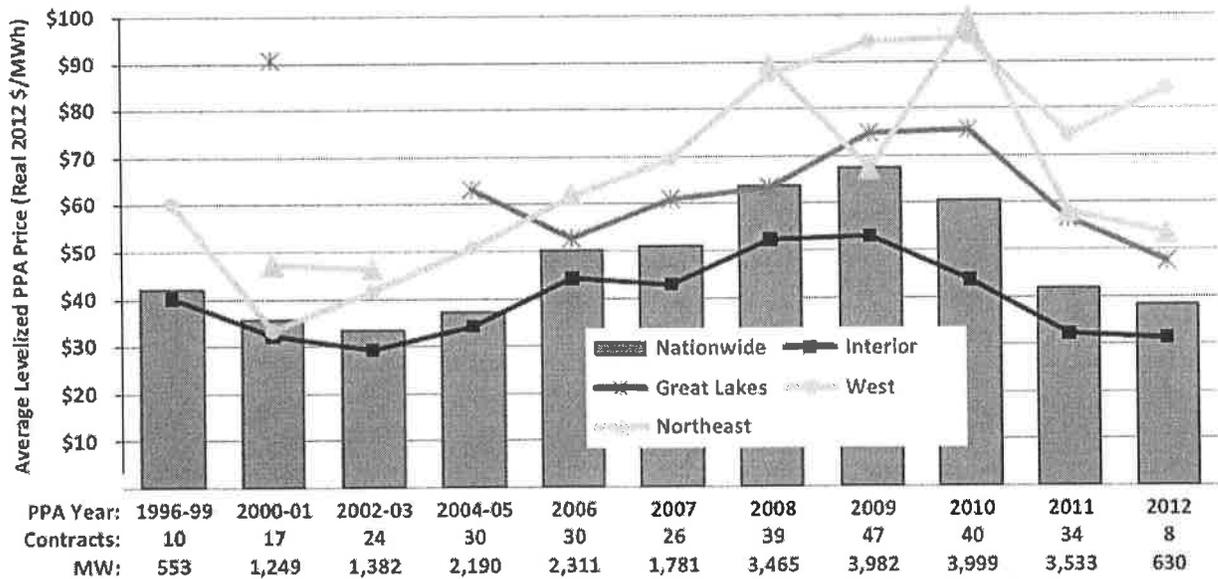


Figure 33. Generation-Weighted Average Levelized Wind PPA Prices by PPA Execution Date and Region

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“Figures 32 and 33 both demonstrate that, based on our data sample, PPA prices are generally low in the U.S. Interior, high in the West, and in the middle in the Great Lakes and Northeast regions. The large Interior region, where much of U.S. wind project

<sup>55</sup> <http://emp.lbl.gov/sites/all/files/lbnl-6356e.pdf>

development occurs, saw average levelized PPA prices of just over \$30/MWh in 2011 and 2012.”<sup>56</sup>

### **Net Metering**

No comment.

**32. To date, integration studies of wind to about 20% on an energy basis have found that the grid can accommodate a substantial increase in variable generation without the need for energy storage, but it will require changes in operational practices, such as sharing of generation resources and loads over larger areas.**

See ISO-NE Wind Integration Study<sup>57</sup> as noted above. As long as ample flexible generating capacity exists inside a given market, varying penetrations of intermittent generation may be incorporated. But substantial concerns as noted above regarding capacity payments, transmission costs and demand side management still remain and are non-trivial.

IICC does not dispute the large percentages of renewable energy can be forced into a given ISO. But that question is secondary. The critical question is one of cost to the ratepayers and the benefit received. And economically and environmentally, wind generation falls far short of that standard compared to other modes of generation.

**33. The EIA levelized cost analysis assumes capacity factors of 30% - 39% for wind and it is anticipated that Michigan wind capacity factors will exceed that. Wind generation technology has advanced rapidly in the last couple of years. Taller towers and larger blade diameters allow for much higher capacity factors and optimized operating characteristics given Michigan's wind resources. Based on third party and electric provider analysis, Michigan wind farms that utilize these new technologies, are anticipated to produce capacity factors well over 40%, meaning that the levelized cost of \$86.60 per MWh is probably inflated and actual levelized costs will be lower.**

As noted above, MI *measured* wind CF has remained flat at 25%. Anything else is unfounded speculation. Curtailment, loss of wind resource and general over estimation of wind resource are all cited above as drivers of lower CF. Further, there is evidence that as turbine fleets age, their CF's drop appreciably, on the order of 1% per year:

*“Onshore wind turbines represent a relatively mature technology, which ought to have achieved a satisfactory level of reliability in operation as plants age. Unfortunately, detailed analysis of the relationship between age and performance gives a rather*

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<sup>56</sup> Ibid.

<sup>57</sup> [http://www.uwig.org/newis\\_es.pdf](http://www.uwig.org/newis_es.pdf)

*different picture for both the United Kingdom and Denmark with a significant decline in the average load factor of onshore wind farms adjusted for wind availability as they get older.”<sup>58</sup>*

This is consistent with anecdotal reports of MI wind turbines that have remained out of service for extended periods of time due to mechanical failure. It remains to be seen how MI wind plants will be maintained in the post-PTC out years as the cycle of periodic changes of ownership continues.

***34. The modeling also assumes that new capacity will be necessary as current fossil fueled generation will be moth-balled or retired due to age and environmental requirements. These compliance obligations would make renewable generation a much more economical choice when compared to the continued capital investment in generating plants that are close to or already beyond their operational lives.***

Since renewable sources have almost no capacity value, the premise that they can be an economical replacement for retiring fossil fueled plants is false. Those fossil plants will need to be replaced with either, gas, coal or nuclear. And if renewables are to be a significant portion of the generation mix, the only choice will be gas.

***35. Renewable energy has also increased the diversity of Michigan’s energy sources, adding to the usual mix of coal, natural gas and nuclear.***

As noted above, since wind energy serves only as a high cost fuel-saving appendage to primarily gas generation, it does not increase diversity. And at high enough penetrations wind actually forces dependence upon only one type of generation: flexible gas.<sup>59</sup>

***36. ...and made people reconsider the way that they analyze new generation alternatives.***

Absolutely true. Wind advocates have successfully shifted the playing field. They have led regulators to ask “can we add geographically disperse intermittent and non-dispatchable resources such as wind energy to a grid designed to accommodate centralized generation and transmission of dispatchable generators”? Sure, to a small degree and at a high cost.

But the critical question is whether we derive any economic or cost-effective environmental benefit from so doing.

Sadly the answer is “No”.

And on that point the National Academy of Sciences is succinct:

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<sup>58</sup> <http://windfarmrealities.org/wfr-docs/hughes-degradation.pdf>

<sup>59</sup> Biomass is an exception to the “renewables are not dispatchable” equation.

*“The reduction in CO2 emissions associated with the [wind] PTC/ITC is, however, small, amounting to about 0.3 percent of CO2 emissions from the energy sector in the Reference scenario. If the revenue lost as a result of the PTC/ITC is divided by the reduction in CO2 emissions, just under \$250 in revenues are lost per ton of CO2 reduced. While this does not represent the social cost of reducing the ton of CO2 emissions .... the fiscal cost per ton of CO2 reduced is high relative to other, more efficient approaches.”<sup>60</sup>”*

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## EXHIBIT A

### **Michigan’s Renewable Energy Mandate is Unconstitutional**

By James J Fuscaldo\*

#### ABSTRACT

The testimony and evidence provided on behalf of the Michigan parties in the Seventh Circuit of Appeals case, Illinois Commerce Commission, et al. v. Federal Regulatory Commission, decided June 7, 2013, Nos. ER10-1791-000; ER10-1791-001; ER10-1791-002 presents serious questions as to the constitutionality of Michigan’s Clean, Renewable and Efficient Energy Act 295 of 2008. This Act is commonly referred to as the Renewable Energy Portfolio Standard (RPS).

The evidence presented in the referenced case, and further analysis of the RPS by legal scholars, establishes a prima facie argument that certain provisions of the RPS are “per se” violations of the Commerce Clause of the United States Constitution. The RPS mandates discriminatory geographic preferences and economic protectionism that are prohibited by the Commerce Clause.

In addition, and apart from the referenced case, it has been determined that states that have adopted laws or are considering legislation that requires states to use “feed-in tariffs”, as a means to establish wholesale prices for “renewable energy”, that such laws violate the Supremacy Clause of the Constitution.

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<sup>60</sup> [http://www.nap.edu/catalog.php?record\\_id=18299](http://www.nap.edu/catalog.php?record_id=18299)

The Federal Power Act empowers the Federal Energy Regulatory Commission (FERC) to regulate rates for the interstate and wholesale price of electricity, and the transmission of electricity in interstate commerce. When a transaction is subject to federal laws and regulations, state regulation and price setting process are preempted as a matter of federal law and the Supremacy Clause of the Constitution. Consequently, a state cannot impose a rate making process that is inconsistent with either FERC regulations or the requirements of the Public Utility Regulatory Policies Act (PURPA).

Feed-in tariff rates or other rate making processes established by state legislative or administrative action cannot exceed the "avoided cost" rate established under federal law. Any state action to order or approve a contract price above the "avoided cost" rate for purchases of renewable power is "void ab initio".

These issues are succinctly discussed in Exhibit A attached hereto.

## EXHIBIT A

### **Michigan's Renewable Energy Mandate is Unconstitutional**

By James J Fuscaldo\*

#### **Commerce Clause Analysis**

The Seventh Circuit Court of Appeals in *Illinois Commerce Commission, et. al. v. Federal Energy Regulatory Commission* decided June 7, 2013, established a basis for parties with interest to challenge Michigan's Clean Renewable and Efficient Energy Act 295 of 2008 (the Act) on constitutional grounds. The Act is commonly referred to as the Renewable Energy Portfolio Standard (RPS).

The RPS compels utility companies doing business in Michigan to provide to Michigan's residents and businesses electricity that is produced from renewable sources. The amount of electricity produced from renewable sources must be 10% or greater by 2015.

The Court determined, and the Michigan parties in the case admitted, that Michigan's statute (Michigan Law 460.1029) forbids Michigan utilities to credit renewable energy

generated outside the state towards meeting the 10% renewable energy mandate. This denies Renewable Energy Credits to renewable energy produced out-of-state. Judge Richard Posner opined “Michigan's argument in this case trips over an insurmountable constitutional objection. Michigan cannot, without violating the Commerce Clause of Article 1 of the Constitution, discriminate against out-of-state renewable energy”. The court cited three Supreme Court cases to support this statement.

Oregon Waste Systems, Inc. v. Department of Environmental Quality, 511 U.S. 93 (1994); Wyoming v. Oklahoma, 502 U.S. 437 (1992), and Alliance for Clean Coal v. Miller, 44 F.3d. 591 (7th Cir. 1995).

Legal scholars have found that Michigan Law 460.1039 also violates the interstate commerce clause. It discriminates against the use of equipment manufactured out-of-state or a workforce composed of out-of-state residents used in the construction of a renewable energy system in Michigan. The RPS only grants bonus Renewable Energy Credits to renewable energy facilities constructed in Michigan that use materials made in Michigan or a workforce composed of Michigan residents. Both laws are “per se” violations of the Commerce Clause because both laws mandate discriminatory geographic preferences and economic protectionism. City of Philadelphia v. New Jersey, 437 U.S. 617 (1978); Dep’t. of Revenue v. Davis, 533 U.S. 328 (2008); Oregon Waste Systems, Inc. v. Department of Environmental Quality, 511 U.S. 93, (1984); Tyler Pipe Industries v. Department of Revenue, 483 U.S. 232 (1987); Pryor, 425 F.3d 168; United States Haulers, 127 S.Ct.1793; American Trucking Assn’s, Inc. v. Mich. Pub. Serv. Comm’n, 545 U.S. 429 (2005); Chem. Waste Management v. Hunt, 504 U.S. 334 (1992).

The Court is required to use the “strict scrutiny” test to analyze “per se” violations of the Commerce Clause. The test requires the state to provide empirical evidence to justify the law and its discriminatory effect on interstate commerce. The State must prove the law, on balance, advances a legitimate and compelling state interest, and the law is the least intrusive means to achieve that interest. City of Philadelphia v. New Jersey (Supra); Pike v Bruce Church Inc., 397 U.S. 137; Oregon Waste Systems, Inc. (Supra).

The creation of an in-state industry and in-state jobs to manufacture and install wind turbines; to allegedly reduce green house gases and carbon dioxide, and to allegedly combat global warming or climate change all appear laudatory public policy interests. However, the means to reach these goals cannot have a discriminatory and adverse effect on interstate commerce.

The “consensus among scientists...” argument, or climate change data based on questionable and speculative computer simulations are not the persuasive empirical evidence the court requires to counterbalance “per se” violations of the Commerce Clause. If the “consensus argument...” and data based on speculative climate change computer simulations were persuasive, the constitutional challenges to comparable renewable energy mandates in other states that are based on violations of the Commerce Clause would have been disposed of on Summary Judgment.

It should be noted with emphasis that concern for environmental preservation in prior cases did not overcome “per se” violations of the Commerce Clause. *West Lynn Creamery v. Healy*, 512 U.S. 186, citing *Philadelphia v. New Jersey* (Supra)

### **Supremacy Clause Analysis**

States with RPS may use above market “feed-in rates” to encourage and support the RPS policy. This permits utilities to pass costs associated with renewable energy development and acquisition to rate payers who do not have the option to accept or refuse renewable energy because of cost.

The purpose of a “feed in tariff” (FIT) is to establish a long term contract for wholesale electricity at a price that guarantees a rate of return to investors and developers of renewable energy projects. FIT is not based on free market principals of supply, demand and competitive pricing. FIT is not based on what the buying utility or its customers want to pay, but rather on a rate that state regulators determine will provide an adequate profit to the seller of the renewable power. FIT is not an open market pricing transaction but rather an administrative mandate. FIT in combination with Michigan’s RPS reduces competition in, and the availability of, renewable power from outside the state. FIT in combination with the RPS operates as an unlawful restraint of trade in the interstate market for renewable energy.

The U.S. National Renewable Energy Laboratory (NREL) defines a FIT as: “... an energy supply policy that offers a guarantee of payment to Renewable Energy developers for the electricity they produce. Payments can be comprised of electricity alone or of electricity bundled with renewable energy certificates...These payments are generally awarded as long term contracts set over a period of 15 to 20 years. Feed in tariff policy can be understood as an advanced form of a production based incentive,....”

FIT promotes either a fixed payment based on the generator’s cost to produce electricity, or as a fixed premium paid above the spot market or wholesale price of electricity. The purpose of FIT is to increase the power sales price for certain wholesale renewable energy technologies to an amount that is deemed by administrative fiat politically necessary to encourage renewable energy development rather than what the value of the power is actually worth in the market to the purchaser. FIT exceeds market wholesale prices and utility “avoided costs”. A FIT is justified solely on its effectiveness to meet political objectives and achieve specific policy results. FIT rejects accepted ratemaking methodology which aims to minimize generating costs to prudent and reasonable market levels.

FIT mandates a payment based on what is demanded by the producer rather than what renewable power is objectively worth to the buyer in the market. It sets a state mandated wholesale price that is often contrary to federal law (the Federal Power Act). The Federal Power Act is intended to guard against “unjustified” or unreasonable prices paid for wholesale power that are ultimately passed on to the consumer. The consumer

is powerless to select the type of energy it desires based on price and availability and unwillingly becomes a captive investor in renewable energy projects.

The prices established by a FIT and passed on to retail consumers is solely to comply with an untenable public policy to increase the percentage of renewable electricity resources in the state; to allegedly reduce green house gases and carbon dioxide, and to allegedly combat global warming or climate change. The means to achieve these political objectives cannot have an adverse effect on interstate commerce or disregard federal law.

States must comply with the Federal and Constitutional limitations on their power to set rates for electric power regardless of their “green policy” objectives.

Sections 205 and 206 of the Federal Power Act (16 U.S.C. Sections 824 (d)-(e) exclusively empowers the Federal Energy Regulatory Commission (FERC) to regulate rates for the interstate and wholesale price for electricity and the transmission of electricity in interstate commerce. The U.S. Supreme Court held in *FERC v. Mississippi*, 456 U.S. 742 (1982), “it is difficult to conceive of a more basic element of interstate commerce than electric energy, a product used in virtually every home and every commercial or manufacturing facility. No state relies solely on its own resources in this respect”.

It is disingenuous for the state to argue that FIT pricing for renewable energy that is generated within Michigan and intended for distribution solely within Michigan pursuant to the RPS does not have an adverse affect on interstate competition, and does not unlawfully reduce interstate competition for renewable energy in Michigan. In *Wickard v. Filburn*, 317 U.S. 111 (1942) the court found that any local activity (i.e. intrastate production of renewable energy) taken either separately or in the aggregate that has a de minimis affect on interstate commerce grants the Federal Government the power to regulate the local activity. This grants the Federal Government the constitutional authority to regulate the pricing, sale, distribution and transmission of renewable energy in Michigan.

The Supreme Court cases consistently have held that the Commerce Clause of the Constitution precludes a state from mandating that its residents be given a preferred right of access and use over out-of-state consumers to natural resources located within its borders (wind power), or to the products derived therefrom (renewable energy) *New England Power Co. v. New Hampshire*, 455 U.S. 331 (1982).

When a transaction is subject to federal laws and regulations (FERC) state regulation and processes are preempted as a matter of federal law and Article IV, Clause 2 of the Constitution. The Supremacy Clause of the Constitution states, “ This Constitution, and the Laws of the United States which shall be made in Pursuance thereof...shall be the Supreme Law of the Land...”

The Supreme Court articulated in *Northern Natural Gas Co. v. State Corp. Commission*, 372 U.S. 84 (1983) and *Nantahala Power & Light Co. v. Thornburg*, 476 U.S. 953 (1986) that, “the exclusive federal jurisdiction over the sale of electric power in interstate commerce is not limited

to rates per se. Their inquiry is not at an end because the commission order does not deal with prices or volumes (of electric power) purchased. See also, *Mont-Dakota Co. v. Pub. Serv. Comm'n* 341 U.S. 246 (1951); *Miss. Power & Light Co. v. Mississippi ex rel. Moore*, 487 U.S. 354 (1988); *Entergy La. Inc. v. La. Pub. Serv. Comm'n*, 539 U.S. 39 (2003).

It is clear from the decided cases of the Supreme Court and legislation adopted by Congress that Congress intended to create a bright line between state and federal jurisdiction pertaining to the transmission and sale of electric power in commerce *Federal Power Commission v. Southern California Edison Co.*, 376 U.S. 205 (1964).

The Federal Power Act, supported by the Supremacy Clause of the Constitution, empowers FERC to regulate rates for the interstate and wholesale sale and transmission of electricity. FERC has the responsibility to ensure that generators of electricity will charge fair rates to retailers, and the generators receive a fair rate of return. FERC's jurisdiction extends to all wholesale sales in interstate commerce. This preempts state regulation of wholesale power transactions and prices. State regulation is prohibited from preempting a federal regulatory scheme. FERC jurisdiction is plenary concerning wholesale power sales in interstate commerce.

Sales of wholesale renewable power to investor owned regulated utilities are wholesale power transactions and interstate power transactions. All are subject to exclusive federal jurisdiction. State authority is preempted and is subject to the Filed Rate Doctrine *Pub. Util. Dist. No. 1*, 471 F.3d 1066; *Entergy La. Inc., v. La. Pub. Serv. Comm'n*, 539 U.S. 39 (2003).

The Filed Rate Doctrine holds that state regulatory commissions may not second guess or over rule on any grounds a wholesale rate determination made pursuant to federal jurisdiction.

*Nantahala Power & Light Co. v Thornburg*, 476 U.S. 953 (1986); *Miss. Power & Light Co. v. Miss. ex rel. Moore*, 487 U.S. 354 (1988); *Entergy La. Inc., v. La. Pub. Serv. Comm'n*, 539 U.S. 39 (2003); *Pub. Util. Dist. No. 1 of Snohomish County Wash. v. Fed. Energy Regulatory Comm'n*, 471 F.3d 1053 (2006); *Morgan Stanley Capital Group v. Pub. Util. Dist. No. 1 of Snohomish County Wash.* 128 S. Ct. (2008).

The Filed Rate Doctrine does not apply to unregulated government utilities, federal marketing agencies, municipal utilities, and utilities in Alaska, Hawaii, and parts of Texas which are not connected to the interstate power grid. There are two other but limited exceptions. The first is where a utility's retail customers individually and voluntarily agree to higher rates for renewable power covering the costs above the utility's avoided cost. The second pertains to "net metering".

State FIT rates that exceed the federal wholesale price of electricity and above the "avoided cost" rate creates a conflict with the requirements of the Public Utility Regulatory Policies Act (PURPA) or the general rate setting requirements of FERC under the Federal Power Act.

Avoided cost is defined as “the incremental cost to an electric utility of electric energy or capacity or both, but for the purchase from a qualifying facility or qualifying facilities, such utility would generate itself or purchase from another source (18 C.F.R., Section 292.101 (b) (6) 2009). The avoided cost rate must reflect prices available from all wholesale power sources able to sell to the utility, regardless of generation technology (S.Cal. Edison Co., 70 F.E.R.C, 61,215 (1995)).

PURPA specifically provides that no state renewable energy mandate requiring a utility to purchase energy from a qualified facility “shall provide for a rate that exceeds the incremental cost to the electric utility of alternative electric energy” (18 C.F.R. Section 292.304 (2010)).

Congressional hearings emphasized the use of “avoided cost” methodologies to determine the cost of acquiring alternative electric power. The purpose was to prevent power producers and the consumer from subsidizing the inefficient operations of another producer, (Hearings Before the Subcomm. on Energy and Natural Resources, 95th Cong. 1st Sess. pt. 1, 189 (1977)).

If a state orders or approves a wholesale power sale rate above the federally approved wholesale power rate pursuant to the Federal Power Act, or above the PURPA “avoided cost” rate, the state will exceed its power and the state violates the Supremacy Clause of the U.S. Constitution.

FERC’s authority under the FPA includes the exclusive jurisdiction to regulate the rates, terms and conditions of sales for resale of electric energy in interstate commerce. A state cannot impose a rule making process that is inconsistent with the FERC regulations and the requirements of PURPA. The state rate cannot exceed the avoided cost rate. FERC’s authority goes further. Any state action to order or approve a contract price for renewable power purchases above the “avoided cost” price is “void ab initio” (Fed. Power Comm’n v. S. Cal. Edison Co., 376 U.S. 205 (1964). “Void ab initio” means any contract is automatically declared invalid and unenforceable from the moment of its execution even without initiating a separate case to contest it.

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