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MICHIGAN PUBLIC SERVICE COMMISSION  
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STEVE BAKKAL, DIRECTOR

**Michigan Energy Public Forum Statement Card**

**If you wish to speak today, please complete the following:**

Name: Clayton Donnell  
Affiliation (if any): Novi Insulation Inc.  
Phone: (810) 560-1485  
Email: ckye@noviinsulation.com

**Topics you wish to address today:**

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

**Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.**

**Please leave a copy of any written or electronic materials at the welcome center.**

**You are encouraged to submit written feedback at [www.michigan.gov/energy](http://www.michigan.gov/energy).**



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## **Readying Michigan to Make Good Energy Decisions**

### **Michigan Energy Public Forum March 25<sup>th</sup>, 2013**

Good afternoon. I am Clayton Donnell. Raised in Battle Creek, Educated at Michigan Tech University and have lived in the Detroit area for 12 years now. I am aware of the diversity of the Great State of Michigan.

Today we want to add Energy Efficiency as a manageable and measureable resource of Michigan, similar to Manufacturing, Tourism, Mining, Water of the Great Lakes State, Agriculture, Timber, an Educated Workforce and other resources. Conversations about energy use in Michigan often revolve around the need to expand the supply of energy to support the growth of the State economy. There is, however, a resource that is cheaper, quicker to deploy, and cleaner, than building new power generating facilities. Few residents of the state want a power generating facility next door to them. Most residents, once shown how, are willing to make their homes and businesses more energy efficient. When done properly it makes them more safe and comfortable as well. Energy efficiency improvements help businesses, governments, and consumers, meet their needs by using less energy, saving them money, driving investments across all sectors of the economy, creating much needed jobs, and reducing environmental impacts.

I come today to tell you that the company I own, Novi Insulation Inc, made it through the recession primarily as a result of Public act 295. We were insulators of new construction homes and had to retool to survive. We learned the Home

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Performance Construction business by listening to our friends at Building Performance Institute, and locally the Building Science Academy. Today, we retrofit existing homes with energy efficient upgrades to make them more 1.Safe, 2.Comfortable, and 3.Energy efficient. Thank you Michigan for Public act 295. My purpose today is to challenge you, legislators, and policy makers to not rest on the Laurels of public act 295. It was a temporary bill. Make it a permanent bill that takes advantage of the energy efficiency resource given to the state of Michigan. But, let's not stop there. Michigan is number 12 in the state energy efficiency score card printed by the ACEEE (American Council for an Energy-Efficient Economy). We can do better. Let's put a comprehensive plan together that not only puts us at the top of the score card but builds pride in our Pure Michigan through a more energy efficient state. I will outline a few ideas for moving Michigan forward to the number one energy efficient state.

Number 1:Marketing and Measuring: a comprehensive marketing plan that dovetails into the Pure Michigan Program needs to be developed. Residents of the state can take pride in knowing that they are making Michigan a better state to live and play in by utilizing the energy efficiency resource. High five to the mitten! We must begin measuring our structures so we can quantify our progress. A standard for each type of structure that is simple and easy to measure needs to be agreed upon. The deviation from that standard is what we should focus on. Lets start at the top.

Number 2:State initiatives: since buildings use up the largest portion of our energy budget, Let's have the State incentivize energy efficient retrofits for homes,

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businesses, government buildings (city, townships, and villages). Again, it is no good if only the tax preparers know about this. All citizens in the state should be aware through the marketing program above.

- A. Create an Energy Efficiency Trust Fund
- B. Performance based energy efficiency State Income Tax Credit.
- C. Performance based energy efficiency Property tax exemption.
- D. State Residential performance based energy efficient rebate program
- E. State Commercial performance based energy efficient rebate program
- F. State Industrial performance based energy efficient rebate program
- G. Energy Conservation Patent Exemption (corporate)
- H. Energy Conservation Patent Exemption (personal)
- I. Energy Efficiency sales tax exemption
- J. Moving toward the IECC 2012 Energy Code for new buildings
- K. Sustainable Building Expedited Permit Program
- L. Expedited permitting for Green Buildings
- M. Green building incentives and Green building program
- N. Energy reduction plan for existing State buildings

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- O. Energy reduction plan for existing Municipal buildings
- P. Energy reduction plan for existing Commercial buildings
- Q. Energy reduction plan for existing Industrial buildings
- R. Energy reduction plan for existing multi unit residential buildings
- S. Energy reduction plan for existing single family homes
- T. Energy reduction plan for existing second homes or part time homes
- U. School facility Modernization grants
- V. Energy Efficiency financing for public sector projects similar to Michigan Saves financing for private sector projects. (a great organization)

Number 3: What are the first steps? We need baseline information on every building in the state. No small task. But Rome was not created in a day. If any program stands a chance of succeeding it must be simple, verifiable through diagnostic testing, and easily understood. Thanks to public act 295 and the utility companies that information is beginning to accumulate. We can speed up this process by beginning some of the following programs.

- A. Set a state mandate that all structures new and existing: Industrial, Commercial, Multiunit residential, Single family residential, and second homes must have baseline data by Jan 1 2020. Commit as a State to do this because it's the right thing to do.

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- B. Start with new structures. Measure how close they are to a performance standard regardless of their compliance to the building codes. The structures are only as good as the laborers that put them together.
- C. Homebuyers energy audit requirement. Whenever a property changes hands a baseline is measured and recorded. As people begin to understand how close there structure is to a prescribed standard (Lets just say it is the ASHRAE Standard 62.2P Average Air Exchange rate of fresh outside air per day of 8.0) it will add value to their properties and purchasing process. A similar structure with a 10 is more energy efficient than a structure measured as a 12. The buyer or seller of that property may decide whether any upgrades are done or not done. Regardless the baseline is recorded in the database.
- B. Counties or Municipalities Incremental compliance dollars. They can get additional incentives from the state for incremental compliance. ie... when a city has 50% of its structures measured it can receive 50% of its incentive dollars.
- C. Counties or Municipalities can be taxed for non compliance. Then outside organizations would have to be hired to come in to bring it into compliance.
- D. Create a census for the state in which one factor is the energy efficiency of the structure they live in.

E. Create a participatory property tax. Take the existing property tax and make a percentage of it reducible by getting closer to a prescribed standard. For an extreme example: if a homeowner has a property tax of \$1000.00 per year. Take 25% as an energy optimization factor. If the home owner met the prescribed standard they would only pay \$750.00 in taxes. If they were twice as high as the standard or more they would pay the full \$1000.

F. Database should be in the States responsibility and probably tied to property tax.

G. Create scholarships to train the workforce that will be needed to fulfill the measuring of baseline data. Let the private sector rise to the occasion.

Number 4: Use tools already out there. We can gain a lot by looking at other states around us. A very handy tool is the ACEEE score card. Lets recap Michigans 12<sup>th</sup> place as most energy efficient:

<b>There are six categories of scoring:</b>	<b>Michigan's</b>	<b>Rank</b>
Utility & Public Benefits Programs & Policies	13.5 out of 20pts.	12
Transportation Policies	2.0 out of 9pts.	23
Building Energy Codes	3.5 out of 7pts.	33
Combined Heat and Power	2.0 out of 5pts.	17
State Government initiatives	4.5 out of 7pts.	17

Appliance Efficiency Standards

0.0 out of 2pts.

50

**Some notable rankings of subsets within the categories are:**

Michigan ranked #20 in Electricity energy efficiency, Energy efficiency budget compared to state wide utility revenues. Only 1.5% scoring 3 out of a possible 5.

Michigan ranked #15 in Gas energy efficiency

Michigan ranked 41<sup>st</sup> for State government lead by example initiatives

Michigan ranked 23<sup>rd</sup> for major state financial incentives.

In summary the ACEEE has the following strategies for improving energy efficiencies:

“No state received a full 50 points in the 2012 State Energy Efficiency Scorecard, reflecting the fact that there are a wide range of opportunities in all states – including Massachusetts (number 1) and other leaders – to improve energy efficiency. For states wanting to improve their standing in the State Scorecard and, more importantly, wanting to capture greater energy savings and the concomitant public benefits, we offer the following recommendations from among the metrics that we track:

**Put in place, and adequately fund, an Energy Efficiency Resource Standard (EERS) or similar energy savings target.** These policies

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establish specific energy savings targets that utilities or independent statewide program administrators must meet through customer energy efficiency programs, and serve as an enabling framework for increases in investment, savings and program activity that, as seen in many of the leading states, can have a catalytic effect on increasing energy efficiency and its associated economic and environmental benefits. The long-term goals associated with an EERS send a clear signal to market actors about the importance of energy efficiency in utility program planning, creating a level of certainty to encourage large-scale, productive investment in energy efficiency technology and services. Long-term energy savings targets require leadership, sustainable funding sources and institutional support to deliver on their goals.

**Adopt updated building energy codes and enable the involvement of utility program administrators in building energy code compliance.**

Buildings consume more than 40% of total energy in the United States, making them an essential target for energy savings. Mandatory building energy codes are one way to ensure a minimum level of energy efficiency for new residential and commercial buildings. Another key policy driver for capturing energy savings from codes is to enable involvement of utility and program administrators in compliance activities. Utilities can also support code compliance financially, by purchasing equipment that code officials can use to measure compliance, as well as generally through new construction programs.

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Utilities are motivated to support code compliance (and adoption) by the need to keep peak demand in check.

**Adopt stringent tailpipe emissions standards for cars and trucks, and set quantitative targets for reducing vehicle miles traveled.** Like buildings, transportation consumes a substantial fraction of the total energy in the United States. States that have adopted California's stringent tailpipe emissions standards (a proxy for energy use) will realize energy savings and pollution reductions greater than those resulting from new federal fuel economy standards. Codified targets for reducing vehicle mile traveled (VMT) are important step towards states' achieving substantial reductions in energy use and certain pollutants

**Treat combined heat and power as an energy efficiency resource equivalent to other forms of energy efficiency in an Energy Efficiency Resource Standard.** Many states list combined heat and power as an eligible technology within their Energy Efficiency Resource Standard or Renewable Portfolio Standard, but relegate it to a bottom tier, letting other renewable technologies and efficiency resources take priority within the standard. ACEEE recommends that combined heat and power be given equal footing, which does not require that the state develop some methodology for how to count combined heat and power savings. Massachusetts has accomplished this in their Green Communities Act.

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**Expand and make visible state-led efforts, such as putting in place sustainable funding for energy efficiency incentive programs; enacting policies that require benchmarking of state building energy use and that drive the market for energy service contracting; and investing in energy efficiency-related research, development and demonstrations centers.** State-led initiatives complement the existing landscape of utility programs, leveraging resources from the state's public and private sectors to generate energy and cost savings that benefit taxpayers and consumers. States have many opportunities to "lead by example," including reducing energy use in public buildings and fleets, enabling the market for energy service companies (ESCOs) that finance and deliver energy saving projects, and funding centers that focus on energy-efficient technology breakthroughs.

Number 5: Pioneer our efforts by bringing it into the schools. Looking at what other states are doing gives us a better understanding of what can be done. We should not stop there. We should use the creative, educated workforce within the state to pioneer new energy efficiencies. Before they even become the work force we can:

- A. Launch a contest in public schools to get the most energy efficient project from a High School student. State sponsored Science Fair.
- B. Start a fund raising program through energy efficiency for schools, churches, scouts, and other organizations.

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- C. Launch a competitive scholarship for energy efficiency for state schools.
- D. Send students from our state schools to other countries for foreign study on energy efficiency.
- E. Integrate Energy Efficiency into the curriculum of our students to raise awareness and a sense of pride in making Michigan more energy independent.

So in recap: 5 steps to a more energy efficient State.

Number 1: Marketing and Measuring

Number 2: State led Incentives and Government Building Retrofits.

Number 3: First Steps

Number 4: Use tools already out there

Number 5: Pioneer our efforts by bringing it into the schools.

So I ask you legislators and policy makers to give Michigan a framework for energy efficiency growth, make it manageable and measureable, treating it as the untapped resource it is. Thank you.

From The Desk of Clayton Donnell

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If you wish to speak today, please complete the following:

*\* Has powerpoint*

Name: Jennifer Battle

Affiliation (if any): Michigan State University

Phone: 517-355-1751

Email: jennifer@msu.edu

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

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If you wish to speak today, please complete the following:

Name: Reese Serra  
Affiliation (if any): 123. Net  
Phone: 248-228-8214  
Email: RSEARRA@123.NET

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Telecommunications & Energy

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If you wish to speak today, please complete the following:

Name: PAUL Beck

Affiliation (if any): \_\_\_\_\_

Phone: 248 219 6667

Email: sharp@fuelstep.com.net

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Where are the jobs

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If you wish to speak today, please complete the following:

Name: WILBE HEYMACH  
Affiliation (if any): HONS CLEAN AIR FORCE  
Phone: 506. 344. 2603  
Email: wilbe@michiganenergy.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): HEALTH

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*Has Powerpoint*

If you wish to speak today, please complete the following:

Name: Josh Barclay

Affiliation (if any): West Bloomfield H.S.

Phone: \_\_\_\_\_

Email: joshua.barclay@earthlink.net

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

*Have Powerpoint*

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If you wish to speak today, please complete the following:

Name: MIKE HANDLEY *A*  
Affiliation (if any): COMMUNICATIONS WORKERS OF AMERICA  
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Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes     5 minutes

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## Hearing Testimony of Mike Handley CWA

### March 25, 2013

- My name is Mike Handley and I'm a member of the Communications Workers of America (CWA).
- CWA is the largest telecommunications union in the world, representing over 700,000 men and women in both private and public sectors.
- I believe that investments in renewable energy are important ways to create jobs and grow the local economy. Continuing these investments are key to creating the fair and safe job opportunities that all Americans deserve.
- I'm here to respond to the question: **What are the related cost and benefits (re affordability, reliability, and the environment) of a range of possible energy efficiency standards (including maintaining our current standard, and increasing it to various levels?**
- Michigan's current renewable standard is helping to grow renewable energy capacity.
- The benefit of the existing standard is that it is already working to reduce pollution and give Michigan cleaner and healthier air and water, protect our Great Lakes and benefit public health.
- One of the many benefits of the existing standard is that it's already creating thousands of good jobs here in Michigan.
- According to the Michigan Public Service Commission, Michigan's existing renewable energy standard has resulted in \$1.79 billion in investment through 2012.
- Renewable energy investments in the wind and solar industries for example are off to a good start across the state.
- Apart from the 4,001-5,000 jobs that exist in Michigan's wind industry, approximately \$7 million in annual property tax payments goes to wind project owners and annual land lease payments total over \$1 million.
- The economic benefits of the existing renewable energy standard are significant. On average each clean economy job in Michigan produces \$26,589 in exports, which ranks it 13th on this measure.
- The estimated median wage in Michigan's clean economy is \$40,558. This compares to \$38,024 for all jobs in Michigan.

- According to the American Wind Energy Association (AWEA) generating wind power creates no emissions and uses virtually no water.
- The wind power installed in Michigan will avoid 930,000 metric tons of carbon dioxide annually.
- To compete against the world in clean technologies and ensure we leave future generations a better environment, we need to start now.
- We need to fight for a better future for our children and grandchildren — that means investing in renewable sources of energy. We can create new jobs with good wages and benefits, bring back jobs from overseas, and secure our current jobs, all while protecting our environment and reducing our dependence on foreign oil.
- Our leaders need to show leadership on this. We can and we will continue to create the jobs of the future in cleaner, more efficient technologies.



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**If you wish to speak today, please complete the following:**

Name: Virginia Shannon

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Email: virginia@environmentmichigan.org

**Topics you wish to address today:**

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- b.  Energy Optimization / Efficiency Standards
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- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: James C. Harrison  
Affiliation (if any): Utility Workers Union of America (\*)  
Phone: (810) 689-6567  
Email: jharrison@uwanet

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Infrastructure / Workforce

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# The Utility Workers Union of America, AFL-CIO

3/25/2013

UWUA

Comments on Michigan's Energy Future to the Michigan Public Service Commissioners

**STATEMENT OF NATIONAL REPRESENTATIVE JIM HARRISON ON BEHALF OF  
THE UTILITY WORKERS UNION OF AMERICA, AFL-CIO**

**MARCH 25, 2013**

Good Afternoon Commissioners. Thank you for the opportunity to speak to you today. I am Jim Harrison, a National Representative for the Utility Workers Union of America. I focus on UWUA Region IV, which includes Michigan.

The UWUA's roughly 50,000 members work in the electric, gas, and water industries across the Nation. In Michigan, we have roughly 9,000 members in local unions, the vast majority of whom are in the energy industry. The utility employers for whom our members work are: Alpena Power Company, Bay City Light and Power, Cherry Land Electric, Consumers Energy Company, City of Croswell Public Lighting, The Detroit Edison Company, Grand Haven Light and Power, Midland Cogen Venture, Traverse City Light and Power, Utility Lines Construction Company, the contract firm that operates and maintains the International Transmission Company's infrastructure and Zeeland Power and Light. Collectively, these highly-skilled women and men work 24/7 in generation, distribution, transmission, field service, customer service, design and planning to ensure that Michigan consumers receive safe and reliable energy to power their homes, businesses, and communities.

We commend the Commission for initiating this proceeding, and share the State's interest in identifying data needed to make sound choices regarding Michigan's energy future. The UWUA is very familiar with developing Michigan energy policy. We played a key role in helping to develop and pass both the 2000 (PA 141) and 2008 (PA 295) energy laws. As an aid to your

efforts, we have begun, but not yet completed, compiling what we believe will be relevant and helpful information. In part, this data comes from a highly reliable source--our Michigan members. They have daily, first-hand experience in operating and maintaining the State's essential utility infrastructure.

The Union's plan is to submit this information to you in the coming weeks. Today, I will offer some brief comments.

Several of the questions that the Commission has identified for examination address service reliability. We think this is appropriate. From the perspective of the Union, ensuring reliable and safe service is our number one priority. Michigan ratepayers demand and deserve nothing less.

A key question is how best to ensure that Michigan utilities continue to provide highly reliable service, regardless of whether the sun is shining, winds are blowing or snow is falling. From our perspective, maintaining service reliability depends on how well we deal with utility infrastructure concerns. The State must ensure that the physical systems operated by Michigan utilities are well maintained. Our members work with aging and deteriorating utility infrastructure, the consequence of years of inadequate maintenance and neglect. Michigan's energy future requires utility infrastructure that is well-maintained and replaced promptly when necessary.

Along with properly maintaining physical infrastructure, the State's utilities must do a first-rate job of maintaining their "human infrastructure." A core component of reliable service is a sufficient and sufficiently well-trained utility workforce. Absent that workforce, the physical systems will not perform as required.

A fundamental question that the Commission has identified to be addressed in this proceeding is "What information does energy policy makers need to consider in order to make good energy decisions?" As maintaining reliability is a priority objective, it is essential for the PSC to determine whether all of the state's regulated utilities are adequately staffed with trained and experienced personnel and, if not, what can be done to remedy the situation. Michigan utilities will be unable to provide safe and reliable services unless they are both adequately staffed today and are undertaking efforts today to ensure that they will be adequately staffed in the future.

We suggest that the PSC review annual utility staffing levels since the advent of deregulation. Based on first-hand experience, we know that deregulation has led to staffing cuts, whether through layoff or attrition. If the number of skilled workers is dropping, while the number of customers and the demands they place on utility infrastructure are increasing, the ability of an undermanned workforce to continue to provide reliable service will be at risk.

In addition, given concerns about the "graying" of the utility workforce, the Commission needs assurance that the State's utilities are engaging in forward-looking human resource planning.

Concerns about America's aging utility workforce are well known. Indeed, as recently as last week, the National Academy of Sciences issued a report warning about looming workforce shortages in the energy industry. Nationally, as of 2010, the average age of an electric or natural gas utility worker was 46.1 years old. By contrast, the US Bureau of Labor Statistics has determined that as of 2011, the median age of an American worker was 42.1 years old. These concerns are present here in Michigan. By way of example, our review of 2011 staffing data show that at one major Michigan utility, which has a union workforce in excess of 2,000 people, 87% of the employees are over 40 years old, an astonishing 67% are over 50, 50% are age 55 and older, and 13% of the workforce is age 60 or older. While we continue to review demographic data, our impression is that these statistics are typical for the State's utilities generally.

In 2011, the Center for Energy Workforce Development, a national group of utility companies, their trade associations, and unions, including the UWUA, predicted that by 2015, a staggering 36% of the current electric and natural gas industry skilled workforce may need to be replaced due to retirement or attrition. Between 2009 and 2011 alone, the number of line workers decreased by .5%, the number of transmission and distribution technicians decreased by 1.1%, and the number of plant operators dropped by 5.6%. It is equally important to note that this is not a problem that lends itself to a quick fix. Inadequate staffing levels in electric and gas utilities, is not something that can be remedied through a quick fix. For some utility job classifications, such as overhead linemen, it literally takes years to become sufficiently proficient.

These data demonstrate the need for the State's energy decision makers to get a handle on how Michigan's utilities are addressing workforce demographic issues, and whether their efforts are adequate and timely.

We note that examining utility staffing levels is well in line with actions being taken elsewhere. The States of Maryland and New Jersey are currently undertaking utility staffing reviews. Those examinations were initiated following the Derecho storm (which hit Maryland last June) and Hurricane Sandy (which devastated the Northeast last October). We also note that major fines were imposed on utilities in Massachusetts for poor storm restoration efforts, following which some long-needed staffing improvements were made. We urge that Michigan not wait for a weather-related disaster (and subsequent public outcry over long outages) to determine if its utilities are adequately staffed. Michigan should learn from—and not repeat—the experience of others, and get ahead of the curve on the important question of utility staffing and its relationship to service reliability.

Thank you for your time today. Again, our plan is to be able in a few short weeks to assist the Commission by providing detailed information on the status of Michigan's utility workforce.



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MICHIGAN ENERGY OFFICE  
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### Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Amanda Godward

Affiliation (if any): Ecotelligent Homes

Phone: 248-291-7815

Email: agodward@GoEcotelligent.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

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## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

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Affiliation (if any): BOOKER T. WASHINGTON BUSINESS ASSN.

Phone: 313 875-4250

Email: wross@att.blackberry.net

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes     5 minutes

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### Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

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Phone: (313) 590-3540  
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Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

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Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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**Comments of David Winowiecki  
Manager of Property Management  
Art Van Furniture  
March 25, 2013**

Good afternoon Chairman Quackenbush and Director Bakka.

My name is David Winowiecki and I am the manager of Property Management for Art Van Furniture. I am responsible for the infrastructures, grounds and mechanical operations for more than 70 Art Van Furniture , Art Van Pure Sleep and Mattress World stores all across Michigan as well as our new stores in Indiana, Illinois, and Ohio.

I am thankful to be here to share our views about the energy policy here in Michigan, and I am pleased that the theme for these forums is "Readying Michigan to Make Good Energy Decisions."

It's important to point out that I am also responsible for utility services for all 70 plus locations. My annual utility budget is \$5.2 million dollars and my personal goal is to cut our utility expenses in half over time. As Business Owners and responsible citizens **WE** need to make good energy decisions in order to achieve that goal. And decisions by the MPSC, the Governor and the Legislature about Michigan's future energy policy will also affect our ability to meet that ambitious goal.

Having said that our goal is to cut utility expenses in half, you would think that I would be here today urging you to provide greater access to deregulated rates.

That is not our position.

I have alternative electricity suppliers calling on me, what seems, like every day of the week. They're all saying that they can beat the regulated rates offered by DTE Energy and Consumers Energy. Their offers all seem to be in the neighborhood of a penny or two less per kilowatt hour than our regulated rates.

If our decision to purchase were solely based on price, our position might be different. It's pretty clear however, that the alternative suppliers are looking to sell me energy, and Nothing more.

That's a far cry from the relationship that I have with my account manager at DTE Energy. Gary Matthes is continually reviewing electricity usage at our stores in DTE's service territory ... He is always looking out for us helping us manage the usage and to lower our bills by ensuring we are on the most appropriate rate plan as well as providing advice on Energy Optimization Program's.

Contrast that with the typical sales pitch from a non-utility electricity marketer, which I'll characterize as "Hey, I can sell you your energy at a cheaper rate."

Our partnership with DTE Energy on energy efficiency efforts has already helped us reduce our electricity usage by more than 20 percent ... or in utility terms more than 41000 KWH per day, by installing energy management systems, replacing over 40,000 incandescent lamps with LED and installing motion sensors.

We'll be focusing on our natural gas usage next. We're in the process of spec-ing out new HVAC units to garner greater energy efficiency, but that will be a longer-term project.

Right now we're doing HVAC tune-ups to make sure we're getting top-notch performance from our existing equipment. And we're also doing things like replacing our automatic doors.

Manual doors aren't open for nearly as long as automatic doors and by switching to manual doors, we're avoiding the energy use associated with operating the automatic doors. and we are also avoiding filling our atriums with hot or cold air – depending on the season -- which forces our heating and cooling equipment to work a lot harder than needed.

These are examples of good energy decisions.

They are the product of a real partnership with my account manager and our Michigan Utility companies and kind of a holistic view encouraged by Michigan's Energy Optimization Initiative.

These positive examples should be encouraged and expanded by any change to Michigan's energy policies moving forward.

Thank you for this opportunity to speak with you this afternoon.



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**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

*has powerpoint*

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Email: sbrady@windontheWires.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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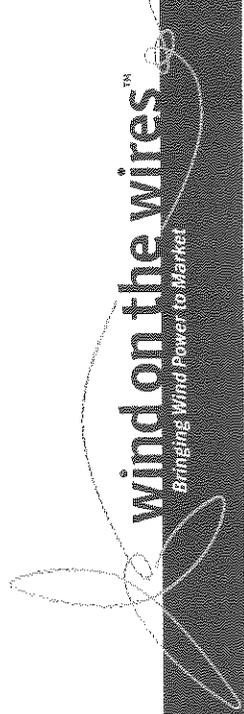
# **Readying Michigan to Make Good Energy Decisions**

*DETROIT*  
Michigan Energy Public Forum – Kalamazoo

## **Wind Energy as a Price Hedge for Electricity Rates**

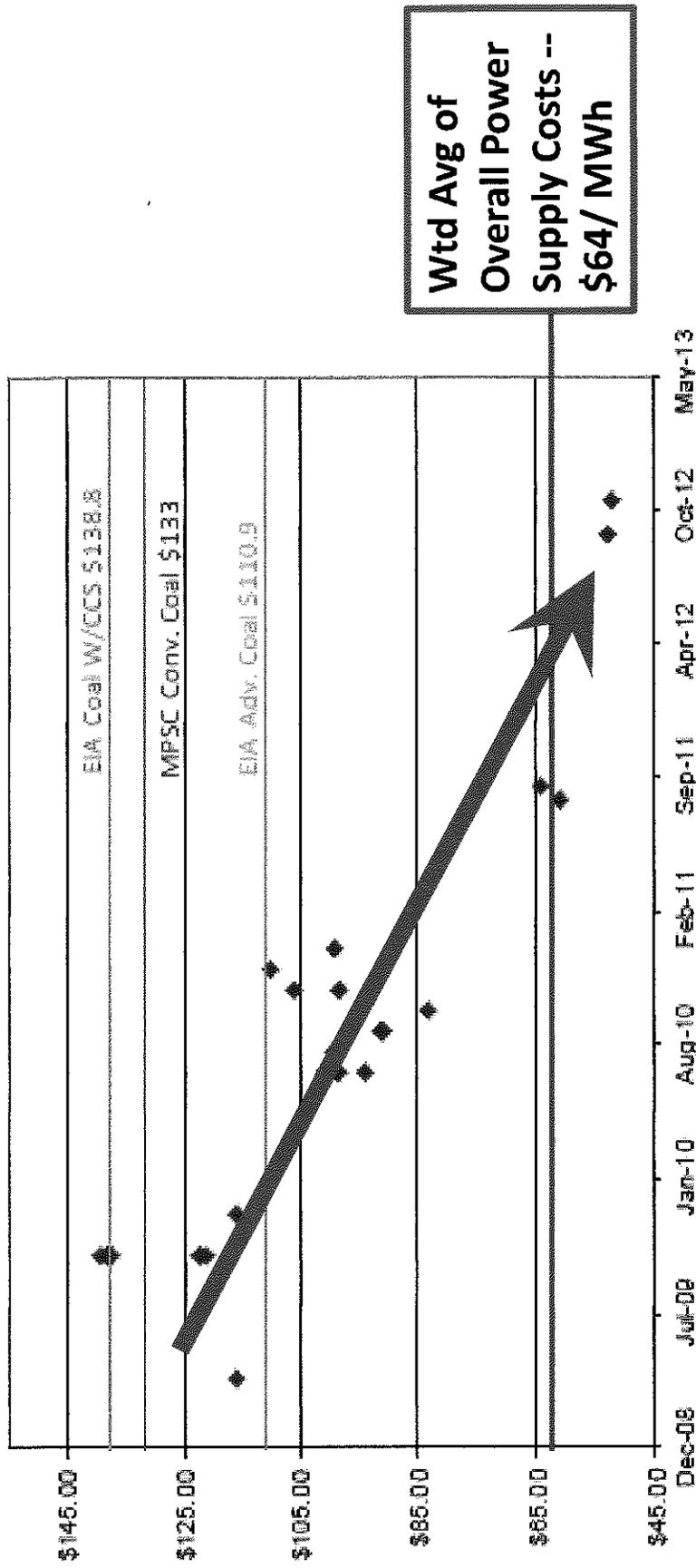
Sean R. Brady  
Regional Policy Manager  
Wind on the Wires  
sbrady@windonthewires.org

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# Decreasing Price of Renewables in Michigan

Levelized Cost of MPSC Approved Renewable Contracts



Source: Report on PA 295 RES and Cost Effectiveness by MI PSC

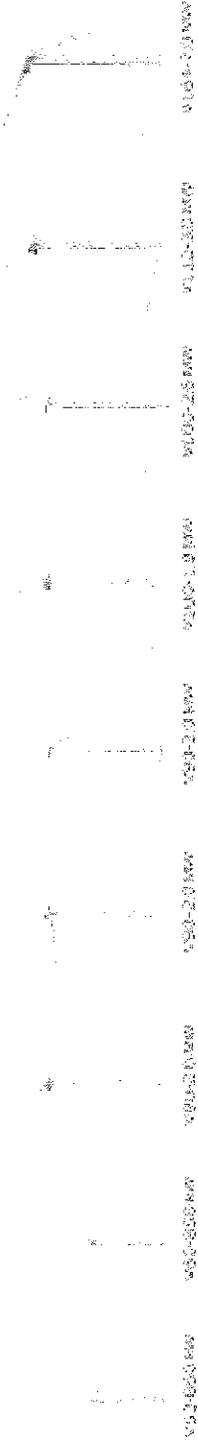
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- Reduced O&M costs
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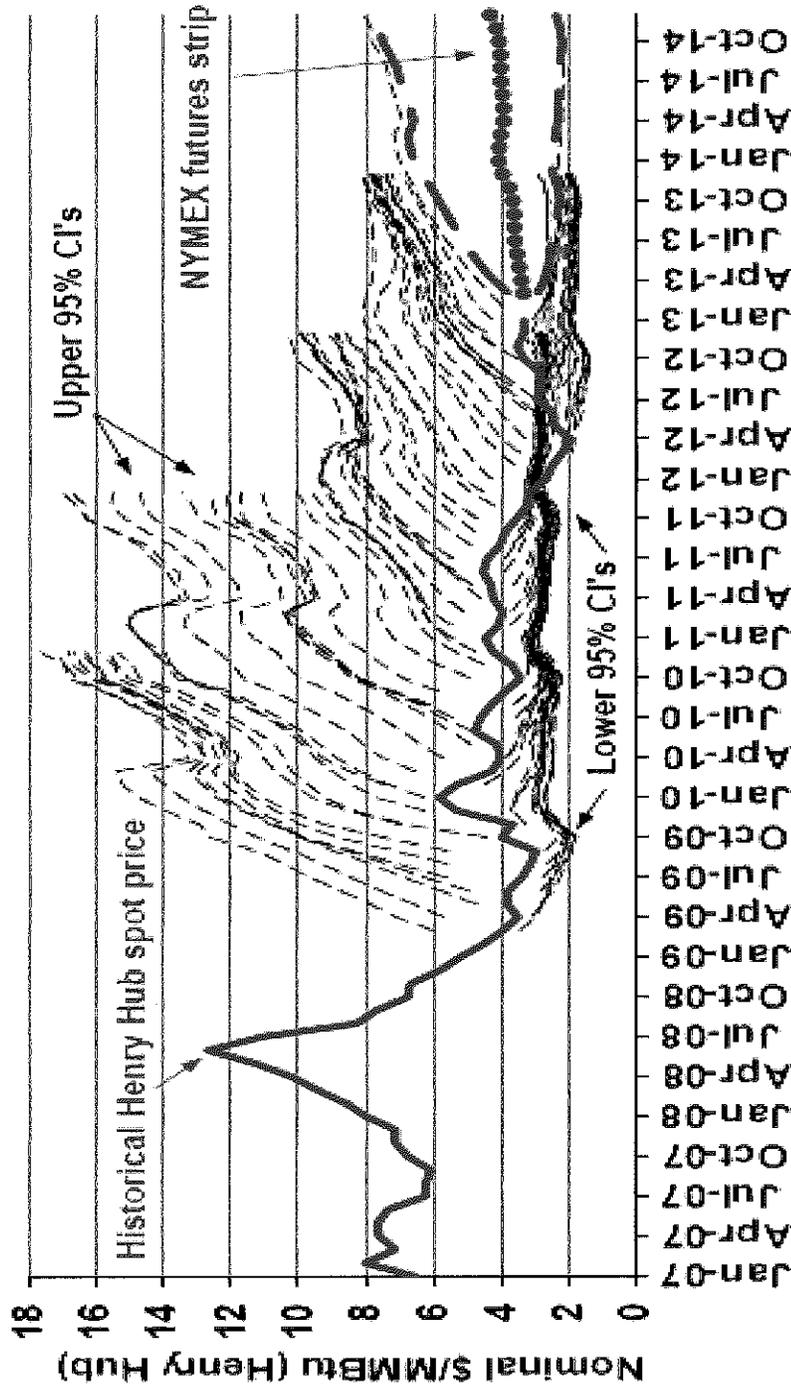


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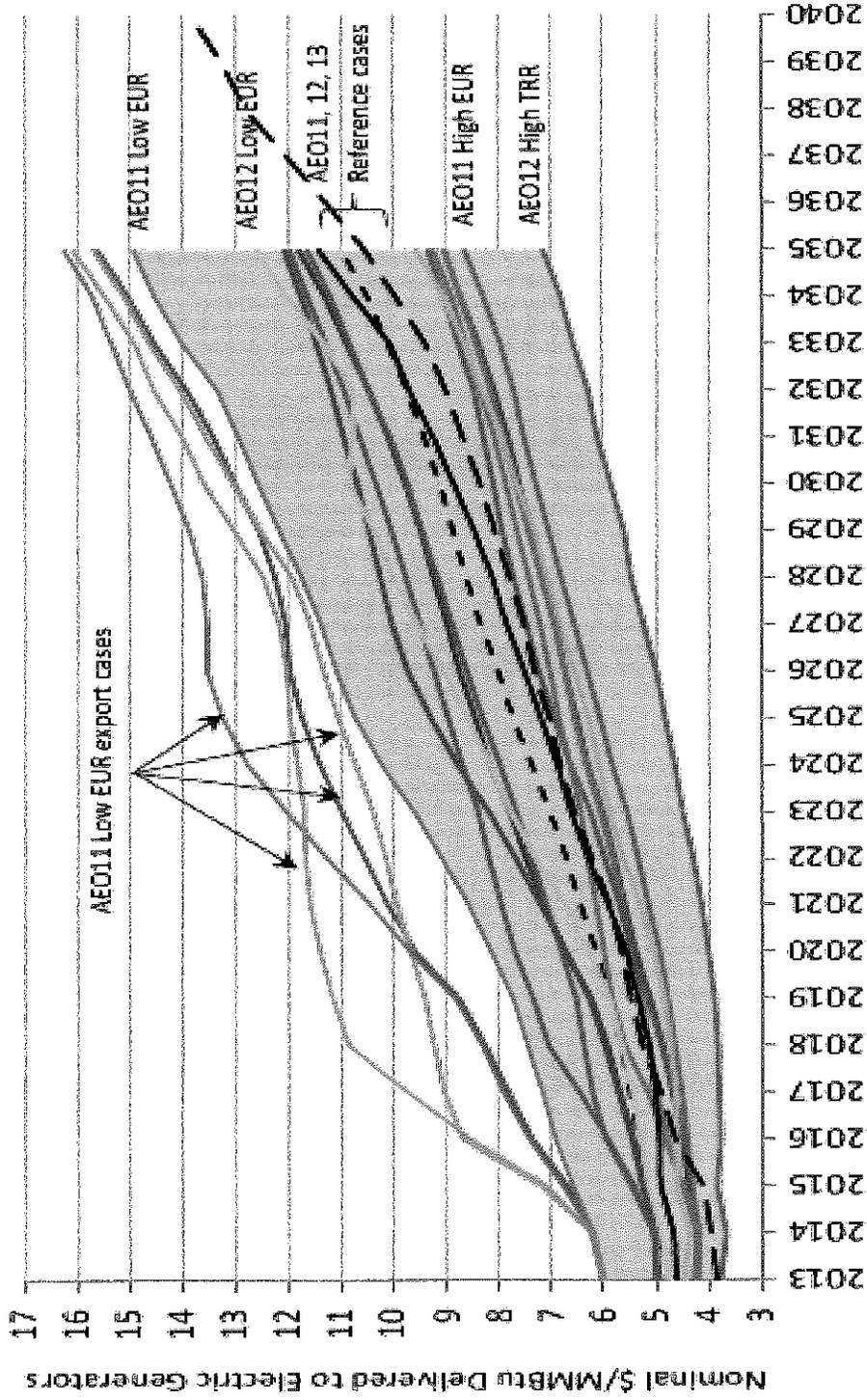
# Natural Gas Prices Futures Prices at Henry Hub



Source: EIA 2009-2013; LBNL Draft Report : Revisiting the Long-Term Hedge Value of Wind Power in an Era of Low Natural Gas Prices (March 2013)

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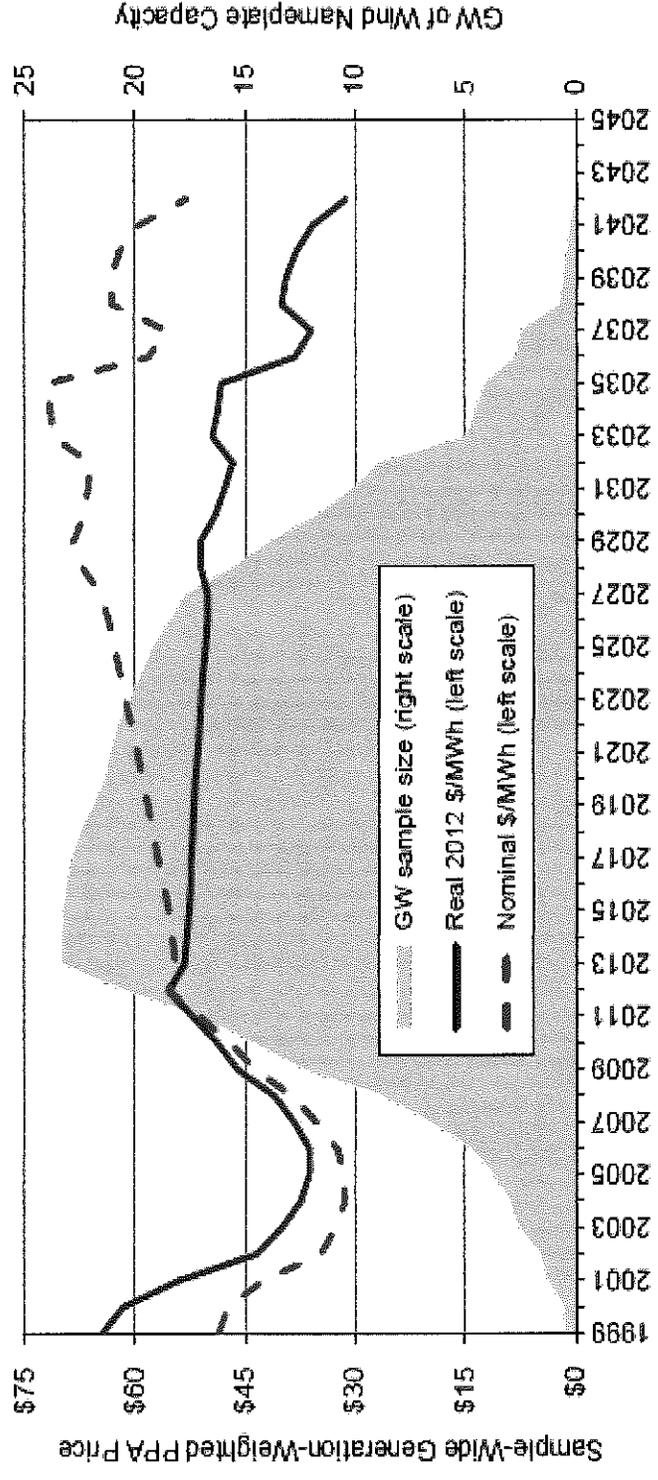
# Projected Natural Gas Prices – 2014-2035



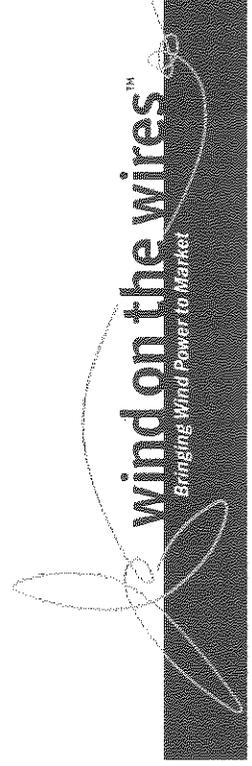
Source: EIA Annual Energy Outlook for 2011, 2012 and 2013



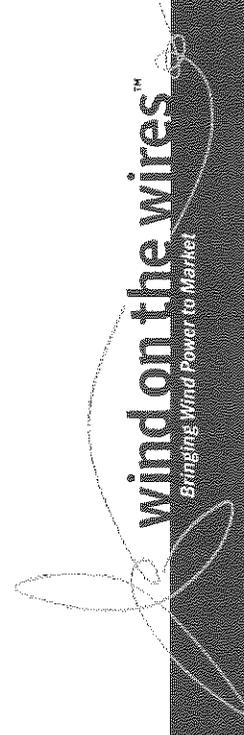
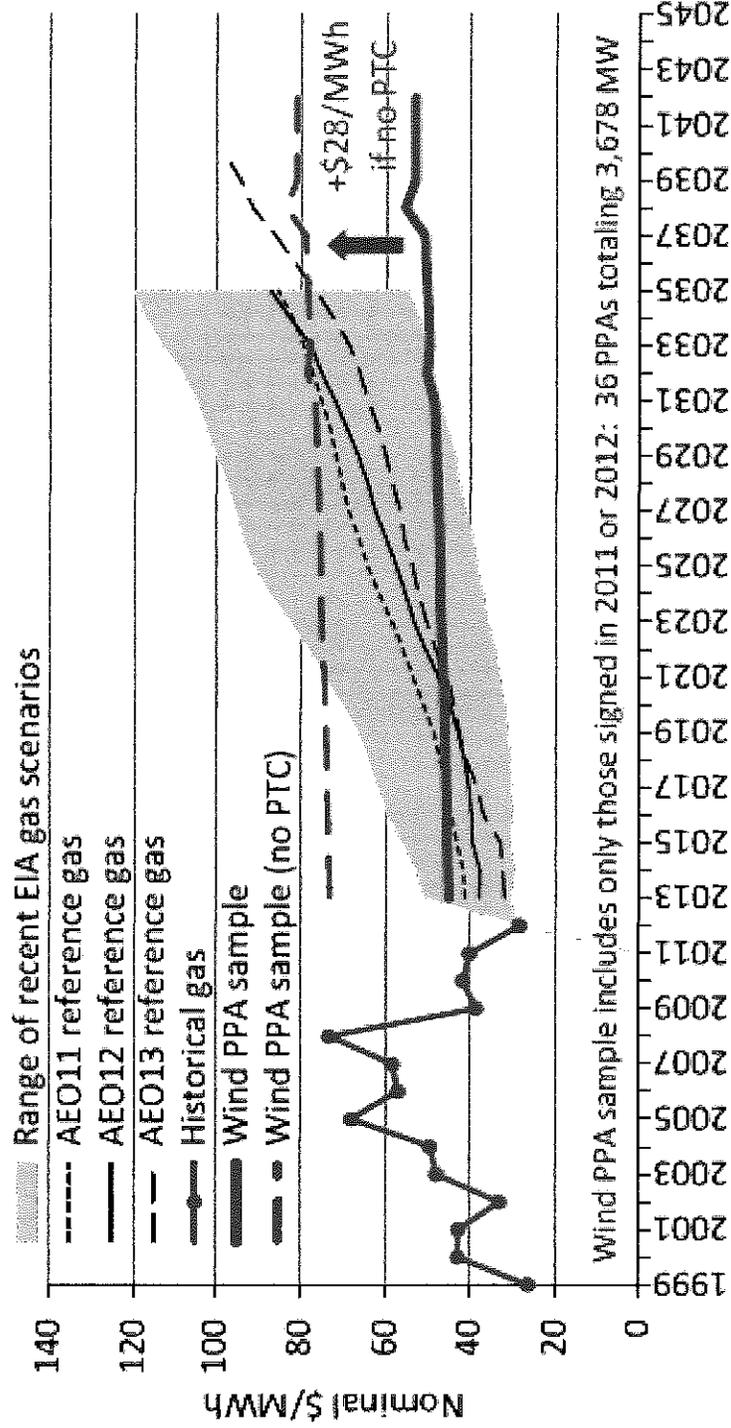
# Generation-Wtd Avg Wind PPA



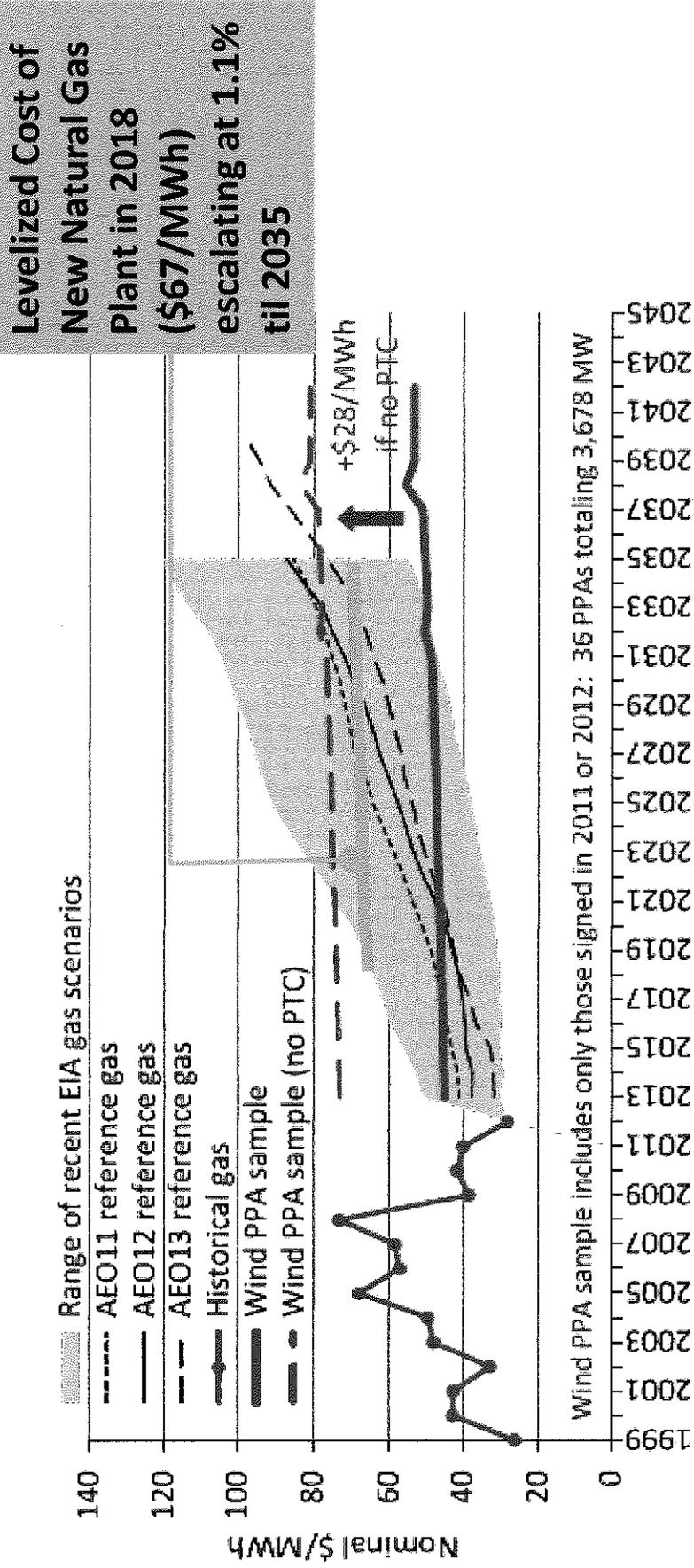
Source: LBNL Draft Report : Revisiting the Long-Term Hedge Value of Wind Power in an Era of Low Natural Gas Prices (March 2013)



# Recent Wind PPAs Compared to Range of Natural Gas Prices



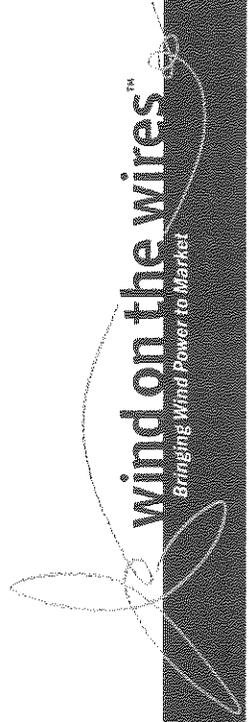
# Recent Wind PPAs Compared to Range of Natural Gas Prices



Source: LBNL Draft Report : Revisiting the Long-Term Hedge Value of Wind Power in an Era of Low Natural Gas Prices (March 2013); EIA Levelized Cost of New Generation Resources (January 2013)

# Thank you

**Sean R. Brady**  
**Regional Policy Manager**  
**Wind on the Wires**  
**[sbrady@windonthewires.org](mailto:sbrady@windonthewires.org)**



## Readying Michigan to Make Good Energy Decisions

Michigan Energy Public Forum – Kalamazoo

### Wind Energy as a Price Hedge for Electricity Rates

#### SLIDE 1

Good afternoon Director Bakkal and Chrmn Quackenbush.

You have asked for facts related to affordability, reliability and the environment. Today I am going to talk about renewable energy – and how utility scale wind contributes to the affordability of Michigan electricity rates by providing a hedge against fuel price volatility – Now and over the next 20 years.

#### SLIDE 2

Let's start with a look at the contract prices Michigan has paid for its renewable energy. Since inception of the Renewable Energy Standard (RES) in 2009, the power prices for wind energy has dropped. Contracts entered into in the last three years have been under \$65, which is less than current average power costs of Michigan utilities. **SO CURRENTLY – UTLITY SCALE WIND CONTRACTS ARE LESS THAN WHAT RATEPAYERS ARE PAYING** and provide a hedge against fuel price volatility.

#### SLIDE 3

Rates for wind energy have dropped due to advances in turbine technology.

Global turbine prices declined by roughly 40% over 2009-12. Keeping all other cost components equal, a 40% decline in turbine prices equates to a roughly 22% decline in the levelized cost of electricity (LCOE) for wind.

Turbine performance has also improved, particularly for those purposed for low wind speeds. A 5% improvement in capacity factor, from an average of 30% to an average of 35%, drives down the LCOE of wind by roughly 13%. **The combined effect of a 40% decline in turbine prices and a 5% improvement in capacity factor yields more than a 30% decline in the average LCOE of wind energy.**

#### SLIDE 4

What do I mean by fuel price volatility? Fossil fuel generators convert natural gas or coal to electricity. The price of those commodities – natural gas and coal -- vary based on supply and demand.

As has been made evident by other speakers, hydraulic fracking has unleashed a wealth of natural gas supply in the United States. Natural gas, however, is being produced at rock

bottom prices; at or below production cost. Therefore there is little likelihood, or risk, of natural gas prices dropping any lower than they currently are and it is highly likely that they will increase. Looking at this graph of natural gas prices over the last 10 years we see the range of 95% probability for prices. Hydraulic fracking has narrowed the probability range of natural gas prices band. Nonetheless -- the likely trend is that natural gas prices will increase.

This slide looks at natural gas future prices in the commodity market. This is the most accurate prediction of natural gas fuel prices over the next 1-3 years.

SLIDE 5

To get a longer view of potential natural gas fuel prices we need to rely on the Energy Information Administration of the US government. They produce 20 year forecasts for natural gas, and here you can see the broad range of fuel prices they've forecasted. I am going to forecast on the narrow band of heavy black lines in the middle of this graph.

SLIDE 6

Lawrence Berkeley National Laboratory (LBNL) has issued a draft report looking at the long term hedge value of wind power in an era of low natural gas prices. As part of its analysis, LBNL compiled this chart of wind energy contracts entered into since 1997. It shows the generation weighted average wind PPA price in 2012 dollars and in nominal dollars. The wind energy contracts over that period of time have an average price of \$50-\$52 in 2012\$.s.

SLIDE 7

Wind energy PPA contracts across the United States that were entered into in 2011 and 2012 were in the mid-\$40s per megawatt hour. Looking at those prices in relation to the forecasted natural gas fuel prices over the next 20 years, we see that natural gas will continue to increase and surpass the mid-\$40 range. Therefore, if Michigan utilities increase the amount of electricity they get from natural gas, your rates will increase. The most recent prices for wind energy are comparable to those of natural gas and provide a good hedge against potential volatility of natural gas prices.

Even if the production tax credit is no longer offered, wind energy remains competitive with natural gas prices, just over a longer period of time.

SLIDE 8

Another key factor to look for is the levelized cost of new natural gas plants. The previous chart compared wind energy PPAs to changes in natural gas fuel prices, which would be similar to a comparison of wind energy to current natural gas plants that are fully depreciated. The orange line represents the levelized cost of new natural gas plants which could be built to replace coal plants that are retired. In December 2012, Consumers Energy announced that it plans to build a major new natural gas fired power plant in Genesee County. The company estimates it will invest about \$750 million in the project.

The average cost of recent wind energy contracts in the United States is less than the levelized cost of new natural gas plants and slightly greater than the cost of new natural gas plants if the federal productions tax credit is removed. Overall, however, this shows that wind energy PPAs act as very good hedge to the construction of new natural gas plants.

**CONCLUSION:** Utility scale wind contributes to the affordability of Michigan electricity rates by providing a hedge against fuel price volatility – Now and over the next 20 years.

In making energy decisions regarding future renewable energy use, Michigan and Governor Snyder should consider the following factors: recent contract prices for wind energy, since they reflect recent advances in technology and therefore the current and future trendline for prices; the current cost of power for MI utilities; the future cost of natural gas since it currently sets the wholesale market price in MISO and most experts in the industry forecast a growth in natural gas use over the mid-term; and the levelized cost to build new natural gas generation plants since natural gas [and renewable energy] will likely be used to replace coal plants.

Thank you,  
Sean R. Brady  
Regional Policy Manager  
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MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

**Michigan Energy Public Forum Statement Card**

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Email: vpebbles@glc.org

**Topics you wish to address today:**

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: Ed McArdle

Affiliation (if any): Michigan Sierra Club

Phone: 313-388-6645

Email: ecoguy2@notzero.net

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

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## **COMMENTS TO MICHIGAN ENERGY FORUM MARCH 25, 2013**

### **Response to Overall Question #1;**

Energy policy makers need to consider first the effect on greenhouse gas emissions. The carbon dioxide load in the atmosphere at 394 ppm is now greater than it has been for the past 800,000 and possibly millions of years. We are now in uncharted territory concerning climate effects.

High priority must be given to the impacts on water use for energy production. Dirty energy producers such as, coal fired power plants, hydro-fracking for gas and oil, and oil refineries use huge amounts of water. Nuclear power plants are huge consumers of water for cooling and emit radioactive isotopes to both air and water. Much of the water from these producers is then contaminated and has to be treated or disposed of often to the detriment of public safety and expense. Michigan is surrounded by the Great Lakes, which we rely on for drinking water, recreation and tourism. Any energy option must have attention paid of the effect to our land and water resources.

Transportation of raw material and the chance of severe accident or exposure to routine processes should be a consideration. As an example the 2010 tar sand oil spill in the Kalamazoo River, the storage of waste products such as coal ash, pet coke, and nuclear waste that is deadly for millions of years. We don't need evacuation plans for renewable energies.

Environmental justice must be also considered. Not only are people of color and/or lower income most subjected to the pollution impacts of dirty energy but also the increasing costs of dirty energy. Lower cost energy would benefit everyone including the business sector. But we must not go with the lowest cost forms of energy to the detriment of future generations.

### **Response to Renewable Energy Questions;**

#9 – I would like to address the long term potential of the depletion of natural gas reserves. According to the Feb. 13, 2013 of the peer-reviewed journal Nature, the present oil and gas boom will likely be short lived. A study of well production in several parts of the country show severe drops in production after 1-3 years. Other sources of long term energy production called CHP (combined heat and power or gray power) that can be extracted from present industrial processes such as steel mills, paper mills, cement plants, oil refineries by capturing the steam heat to power electrical turbines. The EPA estimates that the manufacturing, agriculture and municipal waste, from the Midwest and South could create as much power as 69 nuclear power plants. Studies can be accessed from Renewable Energy Development. Ohio has as much potential to produce electricity by this method equal to eight nuclear power plants at lower costs than coal, nuclear and natural gas according to the study.

#11 – Projected costs of DTE Fermi 3 nuclear plant is approx. \$15 billion. No nuclear plant has ever come in under budget. According to the U.S. Congressional Budget Office

nuclear plants have a 50% default rate. The cost per KWH is hard to determine depending on government subsidy and legislative changes to sticking the construction costs as the plant is being built to the ratepayers. But it will be massive.

#12 The most effective path to renewable energy is the Feed-In-Tariff policy that has been adopted by over 80 countries and jurisdictions. Germany and other European countries have had huge success with this type of program. Our neighbor, the Province of Ontario has extreme success with this method. According to the Renewable Energy Laboratory of the DOE, a FIT is far more successful than an RPS and net metering.

#17 – the costs of renewables on customer's bills should be by usage and not the fixed \$3.00 charge imposed by DTE.

### **Additional Areas**

#1. Re: definitions of reliability; I would like to address the intermittency argument for renewable power. The expansion of wind, solar and other renewables lessen the need for base load power. The wind is always blowing somewhere and can be easily dispatched over the grid. The grid is designed for off line events when facilities are shut down for routine repairs or accidents. I submit as an example an article about a study done in Germany that little power storage or backup is needed to achieve 40% renewable supply. Denmark has the same experience as they achieved 40%. Michigan already has a giant 1800+ MW battery backup called the Ludington Pump Storage facility that pumps water from Lake Michigan up to a reservoir during the night when demand is low and that can then be released during peak demand hours. The joint project by DTE and Consumers Energy is to be expanded to 2100 MW.

Other opportunities exist to capture power from food waste, sewage and turbines in sewage pipes, and animal manure.

Thank for the opportunity to comment.

Ed McArdle, Conservation Chair  
Michigan Sierra Club

18841 Reed  
Melvindale, MI 48122

313-388-6645-or [ecoguy2@netzero.net](mailto:ecoguy2@netzero.net)

### Michigan Does Not Need Fermi 3

In their application to the federal government, to explain why Fermi III would be needed, Detroit Edison relied on a 2006 study done by the Michigan Public Service Commission (MPSC), "Michigan's 21st Century Energy Plan," published in January of 2007. On page 9 of that document, the study said specifically, "Michigan's total electric generation requirements are expected to grow at an annual average rate of 1.3 percent from 2006 to 2025 - from 112,183 gigawatt hours (GWh) to 143,094 GWh."

The Energy Information Administration (EIA), a branch of the federal Department of Energy, keeps track of the actual electrical consumption of each state. According to the EIA, actual electrical consumption in Michigan from 2006 through 2011 (the most recent year for which figures are available) was far below the MPSC projections. Instead of steadily growing, Michigan's demand for electricity has erratically declined.

Year	MPSC GWh	Actual GWh	MPSC Error
2006	112,183	108,018	3.71%
2007	113,641	109,927	3.27%
2008	115,119	105,781	8.11%
2009	116,615	98,121	15.86%
2010	118,131	103,649	12.26%
2011	119,667	105,053	12.21%

By the end of 2011, the MPSC had overestimated Michigan's electrical needs by 14,614 GWh. This number is too large to make any sense to most of us, so some comparison is in order.

The EIA says, in the Frequently Asked Questions section of their website, "In 2010, the average annual electricity consumption for a U.S. residential utility customer was 11,496 kWh." 14,614 GWh is equal to 14,614 million kWh, so the error in the MPSC's projection is (so far) equivalent to the electrical usage of just over 1 and a quarter million average households.

According to section 3.2.1 of the Fermi 3 Combined License Application, the plant should have "... a net electrical output of approximately  $1535 \pm 50$  MWe." That's 1535 Megawatts, the same as 1.535 GW. We can translate GW into GWh of expected annual output for Fermi III. Multiply 1.535 GW times 24 (hours per day) times 365 (days per year) times 80% (utilization factor). That gives us an expected annual output of 10,757 GWh for Fermi III, plus or minus 440 GWh.

In short, by the end of 2011, the MPSC error was considerably greater than Fermi III's expected annual output. Given the past performance of their model, we can reasonably expect the error to grow even larger in the future. Even putting aside all considerations of cost and safety, there is no need - *as Detroit Edison defined need* - to build Fermi III.

In the Final version of the EIS [Environmental Impact Statement for the Combined Licence (COL) For Enrico Fermi Unit 3 Final Report], Chapter 8, entitled "Need for Power," covering pages 8-1 through 8-26, the above noted discrepancy between MPSC projections and the realities of electrical demand in the DTE service area have been both recognized and denied.

The recognition is cursory. Essentially, it is contained in the first paragraph of 8.2.4. It says, "Because the MPSC 21st Century Electric Energy Plan was completed in

2007, it did not include any potential shifts in the demand for electricity due to the economic downturn that began in late 2008." What it does not say is that the drop in electrical demand has already produced a permanent gap between projection and reality greater than Fermi 3's generating capacity. This would be a permanent gap because, even if a pattern of growth in demand were to resume, the gap between real demand and projected would remain.

The denial is extensive. It involves a convoluted effort to rehabilitate the MPSC projections by comparing the MPSC projections of "peak summer demand" with projections of "peak summer demand" from an independent source for a much larger area.

First, facts have shown the MPSC projections to be seriously in error. There is no way that any sort of analysis can produce more than an illusion of reliability for predictions that have been demonstrated to be wrong.

Second, "peak summer demand" is not anywhere close to the correct basis for proving the need for a nuclear power plant. Peak demand, according to the conventions of the electrical power industry, is best met by plants powered by natural gas; plants which can easily be started and stopped according to hour-to-hour demand. Nuclear power plants are generally considered to be good for meeting base load demand. In addition, photovoltaic panels are even more suited for meeting peak summer demand than natural gas powered generating plants, since they automatically generate the most electricity during the days of summer.

Third, both the MPSC study and the 2010 ReliabilityFirst study that was used to rehabilitate the first study share a very simple assumption about continued growth in demand based on steady economic growth for the foreseeable future. This assumption may or may not be true. Political and business leaders certainly hope it is true. Political leaders in particular make efforts intended to stimulate economic growth. The success of these efforts is not guaranteed.

The fact is that, Detroit, which is at the center of the DTE service area, has experienced economic and population decline for at least the last 30 years. That's enough to call the declines a long-established trend. It's also a fact that the state of Michigan actually lost population between the 2000 census and the 2010 census, causing it to lose one seat in the House of Representatives. That's not yet a long-established trend for the whole state, but it is certainly not an indication that economic growth in the DTE service area is any kind of reasonable expectation.

This kind of population and economic decline did not generally happen in the much greater area studied by ReliabilityFirst. Therefore, the assumption made on page 8-20 of the final EIS – that the Detroit Edison portion of the much larger area's electrical demand would be fairly constant – is clearly not justified. A more reasonable assumption would be that DTE's portion will continue to shrink.

**In short, actual demand for electricity in Michigan is nowhere near what Detroit Edison, in their initial application to the Nuclear Regulatory Commission (NRC), said it would be. The MPSC was and remains wrong. The ReliabilityFirst study is not reliable for the DTE service area. The NRC would be wrong to accept DTE's poorly reasoned arguments on this point. Fermi III is not needed.**

Art Myatt, 607 North Wilson, Royal Oak, Mi 48067



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## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

*\*Note: The person I'm  
speaking with needs to  
leave at 4:00 for a  
Passover seder.*

Name: Jan (Janet) Wright  
Affiliation (if any): Interfaith Council for Peace + Justice (AD MIT SP5AK)  
Phone: 734-975-0445  
Email: janwright@umich.edu

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Climate change + the need for renewable energy  
+ energy efficiency.

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

Please leave a copy of any written or electronic materials at the welcome center.

You are encouraged to submit written feedback at [www.michigan.gov/energy](http://www.michigan.gov/energy).

Jan Wright,  
from the Interfaith Council for Peace & Justice

Thank the Governor and all the state officials here  
for inviting public input on these important issues.

My bottom line today is: We need much more **renewable energy and energy efficiency** and much less use of fossil fuels in Michigan's energy mix.

A lot of good reasons—you've heard many of them today.

I'm going to take a slightly different angle **and talk about climate change**

**Now I recognize that we're talking about Michigan here, and any effects we have on climate change won't just help or hurt Michigan.**

**As a person of faith, however, much as I love Michigan and want it to do well, my concerns don't stop at the Michigan border.**

Climate change is not just some abstract idea—**There is recent and compelling data** on how climate change is already affecting and will increasingly affect the Midwest—including **Michigan's economy and the health of its citizens.**

From the *National Climate Assessment*, here are a few examples:

"Extreme rainfall events and flooding... are expected to continue, causing erosion, declining water quality, and negative impacts on transportation, agriculture, human health, and infrastructure." Agriculture will also be affected by heat waves and droughts (as we've already seen).

Increased heat wave intensity and frequency and degraded air quality will increase health risks as well.

And last but certainly not least:

In the Great Lakes, climate change will increase many risks, including

- disruptions in important commercial and recreational fish species,
- declining beach health, and
- harmful blooms of algae.

Continuing our heavy use of fossil fuels—including natural gas--will make all of this worse. In fact, there is evidence that shale gas is as much of a polluter as coal, in terms of carbon, if you consider the whole extraction process. \*\*

More renewable energy and energy efficiency, on the other hand, **will help keep Michigan the kind of state we want to live in!**

---

\*Midwest chapter of *National Climate Assessment*, January 2013 (draft); <http://ncadac.globalchange.gov>

\*\*Howarth, R. W., R. Santoro, and A. Ingraffea. 2012. Venting and Leaking of Methane from Shale Gas Development: Response to Cathles et al. *Climatic Change*. *In Press*.  
<http://www.eeb.cornell.edu/howarth/Marcellus.html>



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**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

*Has powerpoint*

Name: Julie Lyons Bricker

Affiliation (if any): Michigan Interfaith Power+Light

Phone: 248-808-2518

Email: director@mipl.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

*3 slides w/ actual energy efficiency project data (pilot program w/DTE)*

(Please specify): \_\_\_\_\_

*~ 3-4 min. presentation*

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

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**Michigan Energy Public Forum Statement Card**

**If you wish to speak today, please complete the following:**

Name: Anand Gangadharan  
Affiliation (if any): Novi Energy  
Phone: 248 735 6684  
Email: agangadh@novienergy.com

**Topics you wish to address today:**

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: Scott Viciana  
Affiliation (if any): Ventaver  
Phone: 734 682-4001  
Email: sviciana@ventaver.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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*[Handwritten mark]*

**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: AL CHOLGER (DID NOT SPEAK)

Affiliation (if any): UNITED STEEL WORKERS

Phone: 248 631 8432

Email: acholger@usw.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes     5 minutes

Please leave a copy of any written or electronic materials at the welcome center.

GOOD AFT—

Thank Dir. BARRAL CHAIRMAN QUINCY-BUSCH

FOR GIVING ME THE OPPORTUNITY TO TELL YOU WHY USW  
SUPPORTS RENEWABLE ENERGY AS A JOBS PROGRAM

## Hearing Testimony of Al Cholger, USW

March 25, 2013

- My name is Al Cholger and I'm a United Steelworkers Sub District Director.
- USW represents 1.2 million working and retired members throughout the United States and Canada.
- I'm here today because we have to <sup>create</sup> ~~build~~ and protect the renewable energy investments in Michigan that are helping to build a stronger, more sustainable economy.
- In response to the question — **How much renewable energy will be operational in Michigan by the end of 2015? What is the total dollar amount of Michigan renewables investment to date and expected when the 10% goal is reached in 2015?** — the estimated renewable energy percentage reached 4.4 percent and is expected to have reached 4.7 percent for 2012. This is according to the 2013 Michigan Public Service Commission Report on Renewable Energy in Michigan, for 2011.
- Continued investments in renewable energy and energy efficiency will <sup>continue</sup> ~~keep~~ creating jobs, sparking investment and launching new businesses.
- Michigan is uniquely positioned to command the renewable energy manufacturing market. Strategic investments in renewable energy can build on the state's engineering expertise, and modernized machining in the coming years.
- According to the American Wind Energy Association (AWEA), Michigan ranked #8 in the nation in 2012 for its estimated 611 MW of new renewable capacity installed that year.
- There are approximately 121 facilities in Michigan that supply wind turbine components.
- Beyond the wind industry alone, energy efficiency programs and renewable energy goals are creating in-state, good-paying jobs that cannot be outsourced. More than 200 Michigan companies are engaged in the wind and solar industries alone.
- Demand for renewable energy is only expected to grow.
- According to an Energy Innovation Business Council Report, demand for solar panels within the United States is forecasted to grow to 1,190 Mega Watts by 2015.
- If market demand and price for these devices meets forecasted expectations, and if Michigan firms are willing and able to produce the selected products and components, this study indicates the solar subsector could yield an average annual total economic output of \$1.6 billion.

- Demand for wind turbines is forecasted to grow the United States' generation capacity to 50,550 Megawatts by 2015. If market demand and price for these devices meet forecasted expectations, and if Michigan firms are willing and able to produce the selected products and components, this study indicates the Wind subsector could yield an average annual total economic output of over \$46 million and support 1,977 jobs per year.
- If we fail to continue Michigan's renewable energy investments, we risk losing the ground we've gained in these industries now and for the long term.
- However, if we rise to meet the demand of this growing sector of the economy, jobs and economic growth will follow. Michigan's renewable energy standard will help to get us

~~there~~ TO AFFORDABLE, SUSTAINABLE ENERGY OF  
THE FUTURE  
THAT TRANSLATES TO MORE JOBS IN MI



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If you wish to speak today, please complete the following:

Name: Melanie Steele (DID NOT SPEAK)  
Affiliation (if any): Walker-Miller Energy Services  
Phone: (313) 498-1036  
Email: steele@wmenergy.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes  5 minutes

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If you wish to speak today, please complete the following:

Name: Robert Gordon

Affiliation (if any): Sierra Club

Phone: 734 353 9223

Email: Rgordon1580@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): nuclear cost v. clean energy cost

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## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: FAY BEYDOWN

Affiliation (if any): AMERICAN ARAB CHAMBER OF COMMERCE

Phone: 313-510-7916

Email: FAY BEYDOWN@AMERICANARAB.COM

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak: 5 < 5 minutes     5 minutes

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**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: Gary Dillon  
Affiliation (if any): Dillon Energy Services  
Phone: (586) 541-0055  
Email: gwdillon@dillonenergy.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

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## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Frank Zaski

Affiliation (if any): \_\_\_\_\_

Phone: 248 855 5018

Email: frankzas@aol.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): utility rate of return

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

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## Michigan Energy Public Forum (3/25) – Frank Zaski Comments

**Michigan has high and rising electric rates and high coal costs; this is an economic burden on ratepayers.**

According to the US Energy Information Administration (EIA), electric rates in Michigan are higher than in 38 other states. Our rates increased 8% last year while US rates were up only 1%.

<http://www.eia.gov/electricity/monthly/>

Michigan has the worst combination of high dependence on coal (49%) to generate electricity and high coal prices. And, we are further away from PRB mines than most coal users.

If Michigan ratepayers paid only the US average electric rate in 2012, we would have saved \$1.2 Billion on our electric bills. This is the same annual amount the Governor is asking for to fix our roads.

**One solution to slow Michigan electric rate increases is to reduce the utility's rate of return on their investments to the national average**

In their presentations to investment analysts, CMS and DTE brag about the very constructive relationship with the MPSC. <http://phx.corporate-ir.net/phoenix.zhtml?c=101338&p=irol-presentations><http://phx.corporate-ir.net/phoenix.zhtml?c=68233&p=irol-presentations>

They are quick to point out that they are getting a higher guaranteed rate of return on their investments verses their peers in other states- roughly 10.5%. The 2012 US average utility return was 10.0% down from 10.2% in 2011 and down from 11% a decade ago.

<http://online.wsj.com/article/SB10001424127887324373204578374432165174290.html>

DTE and CMS also brag about their 6% EPS growth rate forecast while their peers in other states are at 4%. This is surprising because of their thier relatively flat sales.

Our regulated utilities are doing very well financially. Unfortunately, this is at the expense of ratepayers who are paying some of the fastest growing and highest electric rates in the country. This is a stealth tax on our economy.

*In order to off-set these high rates, our ratepayers need to become more energy efficient. Unfortunately,*

**Michigan is not very energy efficient compared to 10 other Midwestern states**

According to the EIA Residential Energy Consumption Survey, Michigan homes are:

Draftier and poorly insulated

Our homeowners pay more than in any MW state to heat their homes

We keep the heating temperature higher

We are much less likely to clean our furnaces

We also have a lower percentage of Energy Star rated appliances and electronics and a lower percent CFL light bulbs

<http://www.eia.gov/consumption/residential/>

**Michigan really needs to continue our Energy Optimization program and even strengthen it to 2% electric savings per year and keep at .75% a year natural gas savings for as long as they make sense.**

This was the unanimous recommendation of the 2009 Michigan Climate Action Council (MCAC). The MCAC was composed of representatives from industry, utilities, Government, academia, environmental groups and others. 52 of 54 energy efficiency recommendations were approved unanimously by this broad-based Council. MCAC findings are still timely and should be consulted.

<http://www.michigan.gov/deq/0,1607,7-135-50990-213752--,00.html>

Probably, the utilities don't support these high energy efficiency goals, especially for many years into the future. So, we need to let them off the hook.

**Michigan needs one utility Energy Optimization program to replace the many current programs**

The many programs have resulted in excessive overhead and bureaucracy, inconsistent results, confusion and utility conflict of interest.

One, state-wide EO program, can be administered by one organization with the objective of achieving a 2% and .75% annual savings. This organization could be funded by charges on utility bills to the amount forecasted to achieve the 2% and .75% savings. When it appears that we have maxed out on energy savings, slow or even stop collections. Wisconsin and Massachusetts have such programs.

<http://www.focusonenergy.com/> <http://www.masssave.com/> <http://www.aceee.org/sector/state-policy/massachusetts>

Michigan has a relatively new EO program and a lot of catching up to do. Other MW states have had EE programs for years and even more aggressive programs than Michigan's 1% annual electric savings and .75% natural gas savings. For example; Illinois, 2% annual electric savings by 2015, 1.5% annual natural gas savings by 2019, and Ohio, 2% annual electric savings by 2019.

**Maximize demand response in Michigan**

A FERC study suggests Michigan Potential Peak Demand Reduction (2019) is 16%.

<http://www.ferc.gov/industries/electric/indus-act/demand-response/dr-potential.as>

**Michigan water utilities need to cut water leakage**

According to a Detroit Free Press article, Detroit's water system leaks 35 Billion gallons of water a year. This is as much water as used by 16 coal plants. A University of Michigan report says approximately 80% of municipal water processing and distribution costs are for electricity. We need to address the electric and water waste in our municipal water systems.

<http://www.freep.com/article/20120809/COL33/308090096/Stephen-Henderson-Intolerable-waste-in-Detroit-s-Water-Department> and [http://css.snre.umich.edu/css\\_doc/CSS05-17.pdf](http://css.snre.umich.edu/css_doc/CSS05-17.pdf)

Frank Zaski, Franklin, Mi. 248 855 5018 [frankzas@aol.com](mailto:frankzas@aol.com) Former member Michigan 21<sup>st</sup> Century Energy Plan EE team, MCAC RCI work group and Midwest Governors Association RE Advisory Team



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MICHIGAN ENERGY OFFICE  
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### Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Lew Banwart

Affiliation (if any): Integrity Energy Services, Inc.

Phone: 248-219-1038

Email: lewban@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Deregulation

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

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MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: Sandra Turner-Handy  
Affiliation (if any): MI Environmental Council /  
zero waste DETROIT  
Phone: 313 926-9811  
Email: sandra@environmentalcouncil.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Incineration as Renewable  
Energy source

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MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

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If you wish to speak today, please complete the following:

Name: MARGARET WEBER

Affiliation (if any): ZERO WASTE DETROIT and ROSEDALE RECYCLES

Phone: 313-938-1133

Email: mmgweber@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Relation between Energy & Recycling

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If you wish to speak today, please complete the following:

Name: DOUG BOYCE (DIN NOT SPEAK)

Affiliation (if any): ENERCOM INC

Phone: 248-203-0000

Email: d.boyce@enercomenergy.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: TECORA KINOLE (DID NOT SPEAK)

Affiliation (if any): I.E.C.A

Phone: 313-721-7135

Email: \_\_\_\_\_

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: Nick Schroeck

Affiliation (if any): Great Lakes Environmental Law Center

Phone: 313-820-7797

Email: Nschroeck@wayne.edu

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
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- c.  Electric Choice
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(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: Brad Klein (DID NOT SPEAK)  
Affiliation (if any): Environmental Law & Policy Center  
Phone: 312-673-6500  
Email: bklein@elpc.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: RYAN MAITZACH (DID NOT SPEAK)  
Affiliation (if any): BARTON MALOW COMPANY  
Phone: 248-534-9700  
Email: RYAN.MAITZACH@BARTONMALOW.COM

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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**If you wish to speak today, please complete the following:**

Name: FRANK SCHULMEISTER - ENERGY SCIENCES (AND NOT SPEAK)

Affiliation (if any): \_\_\_\_\_

Phone: 248.760.1924

Email: FRANK@ESCIENCES.US

**Topics you wish to address today:**

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: NANCY SEUBERT (DID NOT SPEAK)  
Affiliation (if any): IHM SISTERS, MONROE  
Phone: 734-240-9704  
Email: NSEUBERT@IHM SISTERS.ORG

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
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- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: GLORIA RIVERA 1HM

Affiliation (if any): Great Lakes Bionics Detroit & ZERO WASTE Detroit

Phone: 313 717 6151

Email: RIVER1143@COMCAST.NET

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Incineration as renewable energy, a MIS NO MER

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Thank you, Commissioner Quackenbush and Director Bakkaal

My name is Gloria Rivera and I am here as one of the members of Zero Waste Detroit.

The focus of this gathering, Readying Michigan to Make Good Energy Decisions, connects directly to the mission of the organization I work with, Great Lakes Bioneers Detroit. Our main focus is to promote sustainable community. I am here as one of the members of Zero Waste Detroit, a coalition to support curbside recycling and end incineration in Detroit.

As you know true sustainability has three components: economic, environmental and social. Let me briefly address these components focusing on the topic 'incinerators as means to deal with waste'.

Detroit is still burning waste and this system is often referred to as 'renewable' energy, a misnomer. Incineration is not sustainable.

From an Economic perspective:

- Incinerating waste is one of the most expensive methods to generate energy and handling waste as incineration operations and maintenance costs are ten times greater than other forms of energy generation
- Incinerators are financial risks using taxpayer dollars to subsidize the construction and operations of incinerators. We have a clear example of that in Detroit – over 20 years the city paid over 1.2 billion in costs and debt servicing for their incinerator. Residents have had to pay high trash disposal fees. Detroit could save over \$55 million in just one year and re-direct its funds to curbside recycling.

From an Environmental perspective:

- Incinerating waste is not a form of renewable energy. My understanding of 'renewable energy' is an energy source that is regenerative or *even though it generates steam* virtually inexhaustible like sun and wind.
- Incinerators are inefficient producers of electricity as they are only able to make small amounts of energy while destroying large amounts of reusable materials. They use discarded materials such as paper, plastic and glass that are derived from finite resources such as forests. Burning these materials creates a demand for waste and discourages citizens to conserve or recycle, reuse or compost.

- Incineration contributes to climate change and produces more carbon dioxide than alternatives.

From a Social-environmental Justice perspective:

- Incineration is an environmental justice issue because low income people and people of color communities are disproportionately burdened by incinerators by-products. Yes, they generate steam but they also generate: dioxins, mercury and other harmful pollutants.

In conclusion: we know that Michigan's long-term potential for true renewable energy is possible through wind, solar and hydro.

We are on our way, so let's move forward by encouraging:

- Our policy makers to support good renewable energy policies
- Our policies and energy practices to generate more jobs
- Our business and not-for-profit sector to support these policies
- Our citizens to demand a healthy clean environment based on Earth's wise systems – for in Nature there is NO WASTE.

Let's add 'will' to the skills, technology and resources we have at our disposal right now to move true renewable energy systems forward.

Thank you

Gloria Rivera, IHM  
Great Lakes Bioneers Detroit  
4750 Woodward Ave. #306  
Detroit, MI 48201  
(313) 717-6151  
[www.glbld.org](http://www.glbld.org)



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## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Bill Ghrist  
Affiliation (if any): Washtenaw Community College  
Phone: 734-477-8787  
Email: bghrist@wccnet.edu

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: Michelle Martin (DID NOT SPEAK)

Affiliation (if any): \_\_\_\_\_

Phone: 313-443-1046

Email: michellemart@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Affordability / Health

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## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Jim Lake

Affiliation (if any): Monroe County Business Development Corp

Phone: 734-497-0614

Email: tlake@monroecountyBDC.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes  5 minutes

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**Comments of Tim Lake  
President & Chief Executive Officer  
Monroe County Business Development Corp.  
March 25, 2013**

Good afternoon.

My name is Tim Lake and I am president and chief executive officer for the Monroe County Business Development Corporation. Our mission at the BDC is to attract, retain and diversify job opportunities in Monroe County in manufacturing, research and service.

From our perspective as economic developers for Monroe County we know that companies expanding in Michigan or contemplating locating a facility in Michigan are intensely interested in the availability of power and the state of the infrastructure to deliver that power. We know that from an advanced manufacturing perspective, the reliable delivery of high-quality power is extremely important.

We greatly appreciate the Governor is open and willing to discuss an energy policy for Michigan's future.

We need to have a discussion about the best mix for Michigan's generation portfolio. We know that everyone says they want more renewable energy; they want a cleaner mix of generation. But what is the right level of renewables. What is the appropriate level of fossil-fueled generation? What about the future for nuclear energy, which holds the greatest potential as a baseload, carbon-free source of electricity?

Voters were asked last year to commit to a 25 percent renewable energy goal by the year 2025. We first need to achieve the 10 percent goal and then examine what it meant in terms of costs to Michigan energy users – families and businesses. I am pretty confident that we do not fully understand that issue yet.

There continues to be discussion about deregulation. We need to make informed, intelligent decisions in this area as well. We need something that is fair for all Michigan energy users while continuing to allow Michigan utility companies

to build and maintain the systems necessary to ensure reliable, affordable supplies and reliable and affordable delivery systems.

We know that Michigan's utilities have always been extremely helpful and supportive of the state's economic development efforts. Any future policy needs to provide a way for them to recover their infrastructure and support costs. Utilities and the customers who receive "bundled" service cannot be expected to shoulder all that responsibility.

In the manufacturing sector today all manufacturing is advanced manufacturing and advanced manufacturing requires is reliable, high quality power. Without it, we will not be a position to retain or attract the businesses and job providers that will carry our state into the future. Therefore I ask you and your fellow policy makers not to lose sight of the importance that high quality; reliable electricity will play in the future of our state.

Thank you, again, for this opportunity to address you today.



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STEVE BAKKAL, DIRECTOR

**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: Nicole OBrien

Affiliation (if any): \_\_\_\_\_

Phone: 248 396 3105

Email: naobrien86@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
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(Please specify): \_\_\_\_\_

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**March 25, 2013**

**Comments made and Data submitted at the Regional Energy Forum in Detroit.**

My name is Gail Barber. My home address is 29261 Briarbank Ct., Southfield and I have no affiliation with any organization or business.

I am here today because the forum organizers have asked people to "....submit their factual questions, information reports and suggestions on what information is needed to make good energy decisions." (Michigan.gov/energy)

It is my intent to share data and suggestions that pertain to the Contents of Question #10..... Renewable Energy as it pertains to the cost comparisons for different types of energy production, specifically, the extraction of natural gas via hydraulic fracturing and horizontal drilling.

It is my understanding that Governor Snyder has asked for increased production of natural gas in Michigan. I could not disagree with him more. **For the record**, I request that Governor Snyder, the state legislature and the MI Energy Office, in the process of determining how energy will be produced in this state, place a ban, or at the very least a moratorium, on ALL hydrofracking in Michigan until ALL environmental and human health risks have been addressed.

In support of that request, I am submitting data from the work of Dr. Sandra Steingraber, an internationally recognized authority on the environmental links to cancer and human health.

Dr. Steingraber, with whom I have had the distinct honor of working, is a biologist, author, a highly regarded public speaker and cancer survivor. She is the author of three highly acclaimed books: "Living Downstream: an Ecologist's Personal Investigation of Cancer and the Environment", which has been made into an award winning feature length documentary; "Having Faith", writing of her own 1st pregnancy, brilliantly describing the month by month unfolding of embryonic organs and the alarming extent to which environmental hazards - including the toxic cocktail mix of industrial poisons such as those found in hydrofracking- now threaten each crucial stage of infant development; and "Raising Elijah: Protecting Our Children in an Age of Environmental Crisis", in which she describes the endocrine disrupting and neurological damaging impact synthetic chemicals have on the developing systems of children.

In the past five years she has immersed herself in the hydro fracking conversation, working tirelessly not only in her home state of New York, but all over this country and Europe, in an effort to prevent the hydrofracking industry from taking hold. I believe her volume of writing is a much needed addition to the debate on what our energy future should look like in this state.

To this end, I submit the following three items, written by Dr. Steingraber:

1. A Letter to New York Governor Andrew Cuomo, undersigned by 135,000 people with or touched by a cancer diagnosis, requesting that he consider the cancer risks and associated terrible costs when conducting a comprehensive assessment of potential health impacts due to fracking,
2. An article entitled " The Whole Fracking Enchilada", in which she states that she believes that extracting natural gas from shale using hydrofracking is THE environmental crisis of our time.
3. "Cancer in the Ransom Note" in which she expands on the report entitled "Fracking: The New Global Water Crisis", written by Food and Water Watch. I quote and concur completely: ".We do not consent to the delivery of our drinking water into the radioactive bowels of the earth. We will not negotiate with those who think that additional cases of leukemia, bladder, colon, and lung cancer are just part of the price you pay for gas. Tear up the ransom note. Find another energy plan. Set a sustainable course."

For further verifiable facts, please go to her website: Sandra Steingraber.

I ask the leadership of this state to lead us away from this toxic industry and into clean, healthy and economically viable energy production.

Respectfully submitted,



Gail Barber

29261 Briarbank Ct.  
Southfield, MI 48034

December 12, 2011

The Honorable Andrew M. Cuomo  
Governor of New York State  
New York State Capitol Building  
Albany, NY 12224

cc:

Joe Martens, Commissioner, NYS Department of Environmental Conservation  
Dr. Nirav R. Shah, Commissioner, NYS Department of Health  
Dr. Howard A. Freed, Director of the DOH Center for Environmental Health  
Senate Majority Leader Dean Skelos  
Assembly Speaker Sheldon Silver  
Senator Greg Ball  
Assemblymember Robert Sweeney  
Assemblymember Richard Gottfried  
Administrator Judith Enck, US Environmental Protection Agency, Region 2

Members, High-Volume Hydraulic Fracturing Advisory Panel:

Stan Lundine, former NYS Lt. Governor  
Kathleen McGinty, former Chair of White House Council on Environmental Quality under President Clinton  
Eric A. Goldstein and Kate Sinding, Senior Attorneys, Natural Resources Defense Council  
Robert Hallman, Board Chair, NY League of Conservation Voters  
Robert F. Kennedy Jr., President of the Waterkeeper Alliance  
Robert Moore, Executive Director, Environmental Advocates  
Mark Brownstein, Chief Counsel, Energy Program, Environmental Defense Fund  
Heather Briccetti, Acting President & CEO, Business Council of New York State, Inc.  
Robert B. Catell, Chairman, Advanced Energy Research and Technology Center at SUNY Stony Brook  
Mark K. Boling, Executive Vice President, General Counsel and Secretary, Southwestern Energy

Senator Tom Libous, Deputy Majority Leader  
Assemblymember Donna Lupardo

Dear Governor Cuomo,

We, the undersigned, represent the more than 103,000 New Yorkers diagnosed every year with cancer, as well as the loved ones of the more than 35,000 who die annually from cancer (New York State Cancer Registry, 2010). As New York State considers whether to maintain or lift its current moratorium on hydraulic fracturing, we bring to your attention the myriad ways in which the introduction of this industrial practice in New York State will raise our cancer risk even further and add more data points to the New York State Cancer Registry. As such, we echo the call of the more than 250 physicians and medical professionals who, in their letter to you of October 7, 2011, requested that the state fully assess the human health impacts of hydraulic fracturing in advance of issuing permits and as part of the decision-making process.

In our daily work we see the devastating consequences of cancer on children and adults as individuals, as well as the effects on families, workplaces, communities – indeed the entire state. These consequences include suffering, premature death, lost productivity, and ruinous health care expenses. These costs must be calculated as part of a comprehensive assessment of potential public health impacts, which, right now, is not part of the revised Supplemental Generic Environmental Impact Statement (SGEIS) issued in September of this year. We point out to you that the SGEIS contains no chapters or headings devoted to cancer or carcinogenesis. This document contains no discussion of New York's cancer registry nor any discussion of the economics of the healthcare burden likely to be caused by the release of fracking chemicals and the attendant air pollution that invariably accompanies fracking operations. In fact, the word "cancer" itself appears only ten times within the 1,537-page SGEIS document. Without a health impact assessment and a detailed cancer risk analysis, the SGEIS should not go forward and fracking should not go forward.

Many of us devote scarce resources to the effort to research, communicate, and reduce environmental risks of cancer. It is incumbent on us to speak out about the potential for a

profound increase in cancer risk in New York State by the permitting of hydraulic fracturing. We remind you that, as a percentage of US health-care spending, cancer is the third most costly condition. For an individual person, cancer is the most costly (U.S Department of Health and Human Services).

We also seek to remind you of the historic role that New York State has played in the promotion of environmental justice. From the groundbreaking investigation at Love Canal – which brought safeguards against toxic exposures to all Americans – to the pioneering Long Island Breast Cancer Study Project, New York State is known around the world for demonstrating that public health and environmental protection are inextricably bound. As we painstakingly remove carcinogenic PCBs from the sediments of the Hudson, as researchers investigate the environmental effects of the 9/11 attack on firefighters and first responders, as the Empire State Building undergoes its splendid green restoration – cutting air pollution by 105,000 metric tons a year and winning a gold Leadership in Energy and Design rating – New York State continues to be a model for the nation.

With knowledge grounded in our state's proud environmental health legacy and with the unflinching spirit of those who have confronted cancer and know its terrible costs, we offer you these observations and concerns about fracking.

**Hydraulic fracturing introduces cancer risks from the start and into perpetuity.** Cancer-causing chemicals are associated with all stages of the high-volume hydraulic fracturing process, from the production and use of fracking fluids, to the release of radioactive and other naturally hazardous materials from the shale, to transportation- and drilling-related air pollution, to the disposal of contaminated wastewater. The potential for accidents during the injection and transportation of fracking chemicals concerns us deeply. And, as data from other states clearly demonstrate, the storage, treatment and disposal of the contaminated water can be a source of human exposure to chemical carcinogens and their precursors (Volz, 2011). In addition, the industrialization of the landscape and congestion of small communities with truck traffic impairs the safety and healthfulness of outdoor exercise. Regular exercise is an important, established risk reducer for many cancers, including breast cancer (Bernstein, 2009). Outdoor exercise is

associated with a greater intent to continue the activity, along with other positive health indicators.

**Fracking fluids contain carcinogens and cancer-promoting chemicals.** More than 25% of the chemicals used in natural gas operations have been demonstrated to cause cancer or mutations (Colborn, Kwiatkowski, Schultz, & Bachran, 2011). Between 2005 and 2009, according to the Committee on Energy and Commerce, hydraulic fracturing companies used 95 products containing 13 different known and suspected carcinogens. These include naphthalene, benzene, and acrylamide (Committee Staff for Waxman, 2011). Thirty-seven percent of chemicals in fracking fluids have been identified as endocrine-disruptors. By definition, these substances have the power, at vanishingly low concentrations, to alter hormonal signaling pathways within the body. Many can place cells on the pathway to tumor formation. Exposure to endocrine-disrupting chemicals has been implicated in cancers of the breast, prostate, pituitary, testicle, and ovary (Birnbaum & Fenton, 2003; Soto & Sonnenschein, 2010). These exposures may alter gene expression in pregnancy and early life (Colborn, et al., 2011).

**Fracking operations release from the earth radioactive substances, carcinogenic vapors, and toxic metals.** The shale bedrock of New York State contains many highly carcinogenic substances that can be mobilized by drilling and fracturing. Among these are arsenic, chromium, benzene, uranium, radon, and radium (Bishop, 2011). Drill cuttings and flowback waste are typically contaminated with naturally occurring radioactive substances and cancer-causing metals, which would otherwise remain safely entombed underground. Flowback waste can contain up to 16,000 picoCuries per liter of radium-226, which is more than 200 times higher than the discharge limit in effluent (60 pCi/L) and more than 3,000 times higher than the US EPA drinking water standard (5 pCi/L) (NYSDOH Bureau of Environmental Radiation Protection, 2009). Traditional water filtration cannot remove these contaminants. We are especially alarmed by the ongoing practice of burying radioactive drill cuttings on-site (Bishop, 2011) and of using radioactive production brine from (currently out-of-state) fracking operations on New York State roads, for purposes of dust control and de-icing (NYSDOH Bureau of Environmental Radiation Protection, 2009). This practice exposes unknown numbers of people, without their consent, to unknown amounts of a known human carcinogen.

**Fracking pollutes the air with known and suspected human carcinogens.** Air pollutants from fracking take the form of diesel exhaust (from trucks, pumps, condensers, earthmoving machines, and other heavy equipment) along with volatile organic compounds, including benzene (released from the wellheads themselves) and formaldehyde (produced by compressor station engines). Exposure to these air pollutants have been demonstrably linked to lung, breast, and bladder cancers (Brody et al., 2007; Liu et al., 2009). Using US EPA risk assessment tools to examine carcinogenic effects of air quality at oil and gas sites, researchers in Colorado found excess cancer risks from air pollution alone (from 5 to 58 additional cancers per million). At 86 percent of these sites, the human carcinogen benzene was found at hazardous levels. Airborne concentrations of other carcinogens were also elevated (Witter et al., 2008).

Volatile organic compounds can combine with tailpipe emissions to create ground-level ozone. We are alarmed by studies conducted in the gas fields of Wyoming that reveal ozone non-attainment in areas with formerly pristine air quality (Wyoming Department of Environmental Quality, 2009). Ozone can travel up to 200 miles beyond the gas production area (Colborn, et al., 2011). While not a direct carcinogen, ozone exposure is strongly associated with premature death and is believed to promote the development of metastases, thus making cancer more lethal (Breslin, 1995; Fann et al., 2011). Exposure to traffic exhaust and petroleum fumes further potentiates tumor formation and increase cancer risk (Hanas et al., 2010).

Natural gas drilling in New York State is predicted to increase heavy truck traffic on local roads by as much as 1.5 million more trips per year, with an average of 90 and up to 1000 trucks per day at a single well pad (NYSDOT, 2011). For each individual site, hundreds of tanker trucks hauling fracking fluids for injection and flowback fluids for disposal will roll through our communities and neighborhoods, and yet no one has calculated the cumulative impact of the resulting particulate matter and ozone on public health. We remind the Governor that traffic exhaust, especially from diesel engines, is a well-established cause of chronic illness and premature death – even at levels well below regulatory limits. Most ominously, research is steadily corroborating the relationship between childhood leukemia and traffic density, and childhood leukemia and exposure to airborne benzene (Amigou et al., 2011; Pearson, Wachtel, & Ebi, 2000; Whitworth, Symanski, & Coker, 2008). We are also deeply concerned by the growing evidence linking lung cancer in non-smokers to air pollution, including traffic exhaust. Among

adults, non-smoker's lung cancer is now the sixth most common cancer diagnosis, and rates are rising particularly rapidly among women. A new, nationwide study finds that people who have never smoked but live in areas with higher air pollution are 20 percent more likely to die from lung cancer than people breathing cleaner air (Turner et al., 2011). Fracking will increase this lethal risk.

**Fracking adds carcinogens to drinking water.** Nationwide, more than a thousand different cases of water contamination have been documented near fracking sites. We draw your attention to one of these: the drinking water wells of Pavillion, Wyoming. An EPA study released just this month confirms the presence of the carcinogen 2-butoxyethanol, a widely used fracking chemical, in the aquifer under Pavillion, which is an intensively drilled community (U.S. Environmental Protection Agency, 2011). Pavillion's drinking water also contains benzene, naphthalene, and diesel fuel. We are deeply troubled that confirmation of these cancer-causing contaminants comes three years after their initial discovery and in the wake of repeated denials of responsibility by the gas industry. The story of Pavillion reveals not only that drinking water is at risk of chemical contamination from fracking operations but also that swift mitigation of such disasters is far from assured. The wheels of science grind slowly while the lives of people have remained in harm's way.

We are also troubled by the discovery that drinking water wells located near active gas wells here in the Marcellus region contain methane levels that are 17 times higher than those located near inactive wells (Holzman, 2011; Osborn, Vengosh, Warner, & Jackson, 2011) and by the reports of spiking bromide levels in the rivers of western Pennsylvania that followed discharges of fracking wastewater into sewage treatment plants last spring (Hopey, 2011). While methane and bromide are not suspected carcinogens, they serve as precursors for the creation of trihalomethanes, which can form when water is chlorinated. Trihalomethanes are associated with both bladder and colorectal cancers (Weinberg, Krasner, Richardson, & Thruston, 2002).

**Preliminary evidence points to high rates of cancer in intensively drilled areas.** In Texas, breast cancer rates rose significantly among women living in the six counties with the most intensive gas drilling (Heinkel-Wolfe, 2011). By contrast, over the same time period, breast cancer rates declined within the rest of Texas. In western New York State – where vertical gas

drilling has been practiced since 1821 and has resulted in significant contamination of soil and water – rural counties with historically intensive gas industry activity show consistently higher cancer death rates than rural counties without drilling activity. In women, cancers associated with residence in a historically drilling-intensive county include breast, cervix, colon, ovary, rectum, uterus, and vagina. Men living in the same region are consistently in the highest bracket for deaths from cancer of the bladder, prostate, rectum, stomach, and thyroid (Bishop, 2011), (based on National Cancer Institute cancer mortality maps and graphs, <http://www3.cancer.gov/atlasplus/type.html>). While these correlations do not prove a connection between abnormally high rates of cancer and gas industry pollution, they do offer clues for further inquiry. We in the cancer advocacy community believe that this inquiry must precede, not trail behind, any decision to bring hydrofracking to New York State. Benefit of the doubt goes to public health rather than to the forces that threaten it.

**Fracking operations will undermine New York State efforts to prevent chronic disease.**

New York State currently funds important projects, such as the Creating Healthy Places To Live, Work and Play programs, many of which are being carried out in rural or small-town communities. Objectives of this initiative include increasing the availability and accessibility of places to be physically active, and creating landscapes conducive to physical activity, such as playgrounds and walking trails. It is clear that the industrialization of the landscape where fracking would occur – with increased truck traffic and reduction in air quality described above – undermines these initiatives. As cancer advocates, we know that regular physical activity lowers the risk for many common cancers. Indeed, the American Cancer Society attributes one-third of all cancer diagnoses to sedentary lifestyles, obesity, and poor diet and thus specifically advocates for land use and urban design that encourages outdoor exercise: “Let’s make our communities safer and more appealing places to walk, bike, and be active” (American Cancer Society). Fracking does the opposite. No one wants to walk, bike, or jog along roads filled with 18-wheelers hauling hazardous materials and filling the air with diesel exhaust. Changes to the built environment that discourage outdoor recreation and promote sedentary behavior will increase our state’s cancer burden and further fan the flames of rising health care costs.

**The proposed mitigation strategies set forth in the revised environmental impact statement are insufficiently protective.** The revised SGEIS makes no attempt to explicate the possible

human health effects that may result from permitting thousands of gas wells within New York State and from filling our roadways with the fleets of trucks that will service them – or to project the monetary costs of these health effects. Rather, the document asserts, axiomatically, that no such health effects will occur because each gas well will be surrounded by a buffer zone that sets it apart from residential areas and public drinking water sources. But set-backs, like non-smoking sections inside airplanes, are imaginary circles that cannot contain volatile, inherently toxic substances when they are released from multiple sources into interconnected environmental media. We all breathe the same air, and we all live downstream. The best science shows us that cancer is the end result of multiple stressors adding together over time to alter the genetic signaling pathways within our cells (President's Cancer Panel, 2010) When it comes to cancer, the cumulative impact of many small straws is what breaks the camel's back.

**Chemical disclosure requirements, health registries, and after-the-fact biomonitoring programs cannot substitute for due diligence.** Disclosing the chemicals used in fracking operations, monitoring human exposures to those chemicals, and establishing registries of those harmed by chemical exposures are useful tools for scientific study and are basic to a transparent, right-to-know democracy, but they do not, by themselves, protect public health. **Instead, we need a precautionary, prevention-oriented approach to reducing environmental cancer risk.** Drawing on scientific research conducted here in New York and concluding that "... the true burden of environmentally induced cancer has been grossly underestimated," the 2008-2009 Annual Report of the President's Cancer Panel, calls on state governments to take action to reduce and eliminate toxic exposures implicated in cancer causation *before* human harm occurs (President's Cancer Panel, 2010). To permit a form of fossil fuel extraction that opens countless portals of toxic contamination – upon commencement of the fracking operation and in perpetuity – turns us away from a meaningful approach to cancer prevention.

Governor Cuomo, New York State ranks 11<sup>th</sup> in highest overall annual incidence cancer rate in the United States at 486.2 cancer diagnoses for 100,000 New Yorkers each year – well above the national average of 455.7 (National Cancer Institute, 2011). We urge to you to improve this situation rather than risk raising our cancer rank further by allowing a carcinogen-dependent industry into our state. Instead, let's seek a plan of economic development that arises from our state's venerated identity as a world leader in environmental health – one that is worthy of the

passionate labors of its scientists and cancer survivors and that is as elegant and transformational in design as the award-winning Empire State Building itself. The state that can claim America's tallest green building deserves an energy system to match.

Sincerely,

Sandra Steingraber, Ph.D.  
Distinguished Scholar in Residence, Ithaca College  
Science Advisor, Breast Cancer Action  
Former working group member, National Action Plan on Breast Cancer  
Former science advisor, California Breast Cancer Research Program

Lois Gibbs  
Love Canal Homeowners Association  
Executive director, Center for Health and Environmental Justice

Adelaide P. Gomer, breast cancer survivor  
President, Park Foundation

Fran Drescher  
President & Visionary, Cancer Schmancer Movement  
US Diplomat  
President, FranBrand Skincare  
The Nanny

Babylon Breast Cancer Coalition

Breast Cancer Action, *a national grassroots education and advocacy organization with over 2000 members in New York State*

Breast Cancer Coalition of Rochester

Breast Cancer Network of Western New York

Breast Cancer Options

Brentwood/Bayshore Breast Cancer Coalition

Cancer Action NY

Cancer Awareness Coalition

Capital Region Action Against Breast Cancer (CRAAB!)

Great Neck Breast Cancer Coalition

Huntington Breast Cancer Action Coalition, Inc.

I'm Too Young For This! Cancer Foundation

LGBT Cancer Project

New York State Prostate Cancer Coalition

New York State Breast Cancer Network, *a statewide network of community-based, survivor-driven breast cancer organizations located in communities stretching from Buffalo to Long Island*

Physicians for Social Responsibility, New York City

Physicians for Social Responsibility, Hudson-Mohawk

Physicians Scientists & Engineers for Healthy Energy

SHARE (Self-Help for Women with Breast or Ovarian Cancer)

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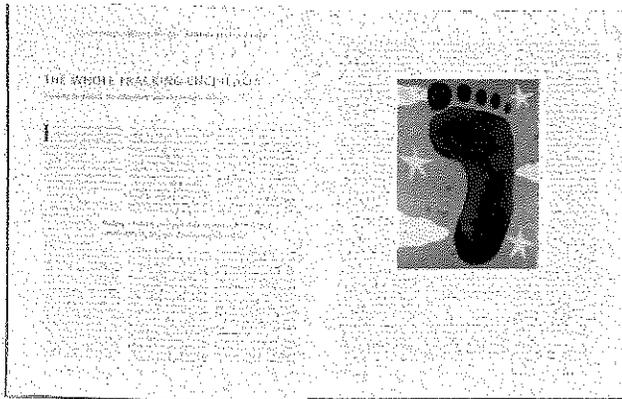
EACH OTHER—WHERE WE ARE

## The Whole Fracking Enchilada

*Violating the bedrock, the atmosphere, and everything in between*

BY SANDRA STEINGRABER

Published in the September/October 2010 issue of *Orion* magazine



I HAVE COME to believe that extracting natural gas from shale using the newish technique called hydrofracking is *the* environmental issue of our time. And I think you should, too.

Saying so represents two points of departure for me. One: I primarily study toxic chemicals, not energy issues. I have, heretofore, ceded that topic to others, such as Bill McKibben, with whom I share this column space in *Orion*.

Two: I'm on record averring that I never tell people what to do. If you are a mother who wants to lead the charge against vinyl shower curtains, then you should. If the most important thing to you is organic golf courses, then they are. So said I.

But high-volume slick water hydrofracturing of shale gas—fracking—is way bigger than PVC and synthetic fertilizer. In fact, it makes them both cheaply available. Fracking is linked to every part of the environmental crisis—from radiation exposure to habitat loss—and contravenes every principle of environmental thinking. It's the tornado on the horizon that is poised to wreck ongoing efforts to create green economies, local agriculture, investments in renewable energy, and the ability to ride your bike along country roads. It's worth setting down your fork, pen, cellular phone—whatever instrument you're holding—and looking out the window.

THE ENVIRONMENTAL CRISIS can be viewed as a tree with two trunks. One trunk represents what we are doing to the planet through atmospheric accumulation of heat-trapping gasses. Follow this trunk along and you find droughts, floods, acidification of oceans, dissolving coral reefs, and species extinctions.

The other trunk represents what we are doing to ourselves and other animals through the chemical adulteration of the planet with inherently toxic synthetic pollutants. Follow this trunk along and you find asthma, infertility, cancer, and male fish in the Potomac River whose testicles have eggs inside them.

At the base of both these trunks is an economic dependency on fossil fuels, primarily coal (plant fossils) and petroleum (animal fossils). When we light them on fire, we threaten the global ecosystem. When we use them as feedstocks for making stuff, we create substances—pesticides, solvents, plastics—that can tinker with our subcellular machinery and the various signaling pathways that make it run.

Natural gas is the vaporous form of petroleum. It's the Dr. Jekyll and Mr. Hyde of fossil fuels: when burned, natural gas generates only half the greenhouse gases of coal, but when it escapes into the atmosphere as unburned methane, it's one of the most powerful greenhouse gases of them all—twenty times more powerful than carbon dioxide at trapping heat and with the stamina to persist nine to fifteen years. You can also make petrochemicals from it. Natural gas is the starting point for anhydrous ammonia (synthetic fertilizer) and PVC plastic (those shower curtains).

Until a few years ago, much of the natural gas trapped underground was considered unrecoverable because it is scattered throughout vast sheets of shale, like a fizz of bubbles in a petrified spill of champagne. But that all changed with the rollout of a drilling technique (pioneered by Halliburton) that bores horizontally through the bedrock, blasts it with explosives, and forces into the cracks, under enormous pressure, millions of gallons of water laced with a proprietary mix of poisonous chemicals that further fracture the rock. Up the borehole flows the gas. In 2000, only 1 percent of natural gas was shale gas. Ten years later, almost 20 percent is.

International investors began viewing shale gas as a paradigm-shifting innovation. Energy companies are now looking at shale plays in Poland and Turkey. Fracking is under way in Canada. But nowhere has the technology been as rapidly deployed as in the United States, where a gas rush is under way. Gas extraction now goes on in thirty-two states, with half a million new gas wells drilled in the last ten years alone. We are literally shattering the bedrock of our nation and pumping it full of carcinogens in order to bring methane out of the earth.

And nowhere in the U.S. is fracking proceeding more manically than Appalachia, which is underlain by the formation called the Marcellus Shale, otherwise referred to by the *Intelligent Investor Report* as “the Saudi Arabia of natural gas” and by the Toronto *Globe and Mail* as a “prolific monster” with the potential to “rearrange the continent’s energy flow.”

In the sense of “abnormal to the point of inspiring horror,” *monster* is not an inappropriate term here. With every well drilled—and thirty-two thousand wells per year are planned—a couple million gallons of fresh water are transformed into toxic fracking fluid. Some of that fluid will remain underground. Some will come flying back out of the hole, bringing with it other monsters: benzene, brine, radioactivity, and heavy metals that, for the past 400 million years, had been safely locked up a mile below us, estranged from the surface world of living creatures. No one knows what to do with this lethal flowback—a million or more gallons of it for every wellhead. Too caustic for reuse as is, it sloshes around in open pits and sometimes is hauled away in fleets of trucks to be forced under pressure down a disposal well. And it is sometimes clandestinely dumped.

By 2012, 100 billion gallons per year of fresh water will be turned into toxic fracking fluid. The technology to transform it back to drinkable water does not exist. And, even if it did, where would we put all the noxious, radioactive substances we capture from it?

HERE, THEN, are the environmental precepts violated by hydrofracking: 1) Environmental degradation of the commons should be factored into the price structure of the product (full-cost accounting), whose true carbon footprint—inclusive of all those diesel truck trips, blowouts, and methane leaks—requires calculation (life-cycle analysis). 2) Benefit of the doubt goes to public health, not the things that threaten it, especially in situations where catastrophic harm—aquifer contamination with carcinogens—is unremediable (the Precautionary Principle). 3) There is no away.

This year I've attended scientific conferences and community forums on fracking. I've heard a PhD geologist worry about the thousands of unmapped, abandoned wells scattered across New York from long-ago drilling

operations. (What if pressurized fracking fluid, to be entombed in the shale beneath our aquifers, found an old borehole? Could it come squirting back up to the surface? Could it rise as vapor through hairline cracks?) I've heard a hazardous materials specialist describe to a crowd of people living in fracked communities how many parts per million of benzene will raise risks for leukemia and sperm abnormalities linked to birth deformities. I've heard a woman who lives by a fracking operation in Pennsylvania—whose pond bubbles with methane and whose kids have nosebleeds at night—ask how she could keep her children safe. She was asking me. And I had no answer. Thirty-seven percent of the land in the township where I live with my own kids is already leased to the frackers. There is no away.

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*Biologist Sandra Steingraber is touring with the documentary film Living Downstream, adapted from her book of the same title.*



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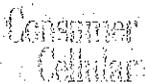


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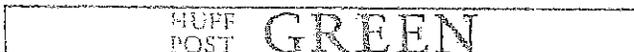
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September 18, 2012



## Cancer in the Ransom Note

Posted: 04/05/2012 10:50 am

Fracking is a hostage exchange program. Only the carcinogens go free.

*"Shale development has been a nightmare for those exposed to the resulting pollution."* -- Food and Water Europe, "[Fracking: The New Global Water Crisis Fact Sheet](#)"

Why should cancer patients in the United States and Canada -- and those who love or diagnose them -- care about a report about looming water shortages in distant countries such as South Africa and Argentina?

The report is "[Fracking: The New Global Water Crisis](#)." Written by [Food and Water Watch](#), it documents the many ways in which the technology called hydraulic fracturing threatens the world's vital water resources. That's because fracking -- when combined with horizontal drilling -- uses prodigious amounts of water as a high-pressure hose to blow apart bedrock. The goal is to liberate the wisps of oil or bubbles of gas trapped inside.

The gas or oil flows up and out of the bore hole. But in the process, the water used to free it becomes caught within the fractured rock. Entombed a mile or more below the water table, this water is removed from the Earth's hydrologic cycle and now resides in the geological underworld. Permanently.

It will never again fall as rain. Or irrigate a field. Or cap a mountain with snow. Or flow through an aqueduct to a city full of people with sinks and bathtubs and teakettles and toothbrushes.

In essence, fracking is a hostage exchange program: to release fossil fuel from the subterranean grip of limestone or shale, water takes its place.

To be sure, some portion of the water used for fracking does return to the surface once the pressure is released. But the flowback water is now contaminated in ways that make it undrinkable. And the technology to make it pristine again does not exist. So it's ruined.

Moreover, it's poisonous enough to necessitate permanent containment somewhere. This problem has no good solution. ("Potential disposal options... are currently unclear," concludes [one official analysis](#).)

Just to review: Fresh water is not the ninety-nine percent. Most of the planet's water is salty. A mere thimbleful -- [one percent](#) -- of the world's aquatic resources is available to us as liquid, drinkable water. Global climate change is quickly siphoning away that slim amount, putting us on track for widespread water shortages.

Meanwhile, millions of gallons of water are required for each horizontally fracked well. And fracking is under way or under consideration in nations all around the world, including Argentina, China, Poland, and South Africa.

According to the new report from Food and Water Watch, fracking will only exacerbate the global water crisis and, were this technology to continue its advance across the world, could actually drive it.

The whole situation sounds urgently concerning. But maybe not urgently concerning in a *personal* way, especially if you are leading an overscheduled, complicated life full of other things to worry about. For example, if you are waiting for results from the last biopsy, or fasting for a colonoscopy, or fighting with your insurance company (and I myself have done all three in the last month), *Fracking: The New Global Water Crisis* might not rise to the top of your reading list.

But it should. Because woven throughout its carefully footnoted pages as a thoughtful subplot is a description of the human cancer risks posed by extreme fossil fuel extraction. It's one of the best summaries I've seen.

Some of the cancer risk from fracking comes from the thousands of gallons of toxic chemicals that are added to the millions of gallons of fracking water to make it slick or to kill off bacteria. Indeed, potential carcinogens [make up 25 percent](#) of the chemical additives used in fracking operations. Sometimes, through leaks, blow-outs, or surface spills, these chemicals migrate into water not intended for fracking.

As detailed in the report, fracking has been implicated in the contamination of surface and groundwater supplies across the United States. In Pennsylvania, more than 8,000 gallons of fracking fluid containing a suspected carcinogen [spilled into a waterway](#). In Parker County, Texas, fracked gas wells [poisoned a drinking water aquifer](#) with benzene and methane. Likewise, in Pavillion, Wyo., the U.S. Environmental Protection Agency [found benzene in groundwater and wells](#). Benzene exposure is strongly associated with childhood leukemia.

Think about that the next time you're asked to donate to the Make-A-Wish Foundation.

Some of the cancer risk from fracking comes from the release of naturally occurring chemicals found deep in the earth. One of them is radium-226, which is as radioactive as its name implies. Of over 240 fracked gas wells in Pennsylvania and West Virginia, almost three-fourths produced wastewater with elevated levels of radiation.

Mull that over the next time you're glancing at the pamphlets on breast cancer in your gynecologist's office and encounter a phrase like *exposure to ionizing radiation increases your risk for breast cancer*.

Bromides are another naturally occurring substance unearthed by fracking. The cancer risk here is created when fracking wastewater is run through sewage treatment plants, enters rivers and streams, and then is subsequently chlorinated for drinking water downstream. The bromides combine with organic matter to create brominated trihalomethanes, which are well-described carcinogens linked to both bladder and colon cancer.

Ponder that the next time you prep for a colonoscopy or climb up on the urologist's table for a cystoscopic exam.

Carcinogens can also evaporate from frack wastewater and become air pollutants. When volatile organic chemicals, such as benzene and formaldehyde, combine with diesel exhaust from the heavy machinery and fleets of tanker trucks that haul the water to the well sites, the result is smog – ground-level ozone – which can travel hundreds of miles on prevailing winds. Ozone is not a carcinogen *per se*, but animal studies show that, because it creates inflammation, it can raise the risk for metastases. Moreover, diesel exhaust is, all by itself, a probable lung carcinogen.

Meditate on that while lying in the MRI machine.

As the new fracking report makes clear, it's extremely difficult to establish links between individual diagnoses and particular chemicals used, released, or created by fracking operations. Nevertheless, when carcinogens are released into the common environment, an ongoing public health and environmental experiment is set in motion, and people are placed in harm's way, often without their consent. Moreover, as the report goes on to say, "many of these problems are inherent to the process and cannot be avoided through regulation."

On this basis, [Bulgaria](#) and [France](#) have both enacted nationwide bans on fracking. Vigorous public protest contributed to both of these decisions and led the French environment minister to [concede](#), "We have seen the results in the U.S. There are risks for the water tables and these are risks we don't want to take."

As a bladder cancer survivor, I don't want to take these risks either. So here's where cancer patients come in. Even with one hand tied to the chemotherapy drip, we can write letters and make phone calls. All together, we are a mighty coalition with a towering pile of medical bills. We can send a powerful message. Here's an example:

*Dear Governor:*

*Fracking, a leading contributor to The New Global Water Crisis, threatens to exacerbate The Old Global Cancer Crisis, which is a really expensive problem (see attached invoice from my radiologist). We cancer survivors, who know something about the preciousness and fragility of life, hereby declare that the exchange of life-giving water for death-dealing fossil fuel is unacceptable. It's holding us all hostage.*

*We do not consent to the delivery of our drinking water into the radioactive bowels of the earth. We will not negotiate with those who think that additional cases of leukemia, bladder, colon, and lung cancer are just part of the price you pay for gas. Tear up the ransom note. Find another energy plan. Set a sustainable course.*

For extra emphasis, place the call from your oncologist's office. Hit the send button while the IV drip is being changed. Add a plastic hospital wrist bracelet to the envelope. Or a collage constructed of ultrasound images. Or a lock of hair – the one that fell out in the shower shortly after the treatments began. Speaking out takes many forms.

*Sandra Steingraber is the author of Living Downstream, published in second edition by Merloyd Lawrence Books/De Capo Press to coincide with the release of the documentary film adaptation. This essay is one in a weekly series by Sandra exploring how the environment is within us.*

<http://steingraber.com>  
[www.livingdownstream.com](http://www.livingdownstream.com)



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STEVE BAKKAL, DIRECTOR

### Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: TRACY OBERLEITER (DIPLOMAT SERVICES)  
 Affiliation (if any): Monroe County Economic Development Corporation  
 Phone: 734 735 2952  
 Email: TRACY.OBERLEITER@MBANDT.COM

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Energy Policy in General

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

Please leave a copy of any written or electronic materials at the welcome center.

You are encouraged to submit written feedback at [www.michigan.gov/energy](http://www.michigan.gov/energy).

**Comments of Tracy Oberleiter  
Chairman  
Monroe County Economic Development Corporation  
March 25, 2013**

Good afternoon, Chairman Quackenbush and Director Bakka.

I am extremely pleased to be able to be here this afternoon to offer the perspective of the Monroe County Economic Development Corporation, the organization for which I am privileged to serve as chairman. Our mission is to promote county-wide economic growth and employment stability by attracting and retaining business development through partnering with government, business, industry, and labor which will better the quality of life for all people living and working in Monroe County.

We believe that reliable, affordable supplies of energy, in general, and electricity, in particular, are critical to that mission. We applaud your work to help chart the path to a sustainable energy policy.

From an economic viewpoint, we want to make sure that Michigan policymakers provide a policy environment that enables DTE Energy, one of my county's major employers, and Michigan's other electric utilities to continue to investment in their physical assets to assure that the families and businesses of Michigan will have the electricity they need not only for the near future but for decades to come.

I invite policymakers to carefully consider the energy policy paths chosen by other states, including California, New Jersey, Maryland, Texas and, our neighbor to the south – Ohio. In each case, there were unintended consequences from California's rolling blackouts nearly 20 years ago to the inability of New Jersey and Maryland to build needed new electric generation facilities to the most recent doubling of rates for some Ohio utility customers. These examples should give us pause.

The City of Monroe and Monroe County certainly may be biased because we enjoy the benefits that accrue from being home to a number of facilities for a great corporate citizen like DTE Energy, but the fact remains ... it is inherently risky for any company to make and keep making investments in their future when a unit of government is contemplating policy decisions that affect the business's core operations and relationship with its customers.

On a bit of side note, I could not help but be struck by Governor Snyder's energy address last November, specifically his emphasis on the environment. He said, "Energy is the life blood of Michigan's economy, and without a reliable and affordable supply, our economy would simply shut down. But what good is a strong economy if we can't enjoy our environment -- the Great Lakes, our forests, fields, rivers and streams? Together, energy and our environment go hand in hand, and we must consider both together when planning for the future."

I have mentioned that DTE Energy is an exemplary corporate citizen. I also hasten to add that its commitment to the environment is as strong as its commitment to Monroe County and Southeast Michigan. As an avid outdoorsman, I have seen first-hand their dedication to reducing air emissions from their power plants as well as to improving the environment in the area through its involvement the Detroit River International Wildlife Refuge and organizations like Ducks Unlimited to restore critical wetlands.

In closing, I encourage Michigan policymakers to bear all this in mind as you contemplate an energy policy to ensure Michigan's energy future.



STATE OF MICHIGAN



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GOVERNOR

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MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: Louis E. James (Did not show)  
Affiliation (if any): SEEL -Jobs  
Phone: 313-841-5000  
Email: ljames@mcjasa.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Jobs

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

Please leave a copy of any written or electronic materials at the welcome center.

You are encouraged to submit written feedback at [www.michigan.gov/energy](http://www.michigan.gov/energy).



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**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: Ahmina Maxey  
Affiliation (if any): Zero Waste Detroit  
Phone: 313-986-2990  
Email: ahmina.zwd@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

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## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Nancy Davis

Affiliation (if any): \_\_\_\_\_

Phone: \_\_\_\_\_

Email: NancyDavis@yahoo.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes     5 minutes

Please leave a copy of any written or electronic materials at the welcome center.

\*Have to leave at 4:15

DC.

## A. FOSSIL FUEL POLLUTION WASTES DOLLARS AND LIVES

- Air pollution from coal plants causes an estimated 10,000 deaths per year
- Michigan spends estimated \$1.4 billion yearly on health exacerbations due to air pollution
- Toxic chemicals as mercury and particle pollution contribute to heart disease, asthma, cancer, harming lungs, growth and health (Am. Lung Assoc.)
- Cancer rate in metro Detroit is 200 times higher than acceptable ( EPA 2002)
- Oakland county ranks "F" in air quality ( Am. Lung Assoc 2011)
- 60% of Americans are threatened by air pollution ( 2009 ALA study)
- 6% of women have mercury levels exceeding EPA acceptable level (CDC)
- Association found between fish consumption and neurodeficits (EPA)
- Estimated 300,000 infants born yearly with elevated mercury levels (CDC)
- 10% of Michiganders have asthma (Center for Disease Control)
- Mercury is so toxic that 1/70 teaspoon contaminates a 20 acre lake
- Total Mercury emissions (MI) from man-made sources: 4573 lbs (DEQ 2005)
- 41.5% of mercury in Michigan comes from burning coal

*Nancy G. Davis, B.F.A., B.M., M.M., B.S.,  
Former Member, Orchard Lake  
City Council  
Current Resident, West Bloomfield*

## B. AIR POLLUTION HARMS MICHIGAN TOURISM & BUSINESS

- All Michigan's 11,000 lakes have been issued fish advisories for eating fish
- Michigan's tourism industry is harmed by mercury contamination of lakes
- 69% of Michigan lakes exceeded the 0.5 PPM advisory ( in at least one sample)
- Fish contain mercury up to 1 to 10 million times surrounding water
- Michigan spends an estimated \$1.8 billion yearly to import coal
- Lake Erie's massive dead zones and toxic algae are linked to air pollutants, warmer weather, climate change (Free press. Oct, 16, 2010)

## C. IS MICHIGAN'S AIR POLLUTION IMPROVING?

- Technology to improve mercury emissions from coal plants is very expensive
- Power plant HG emissions are up: 2133 lbs in 1994 (to 2288 in 2003)
- While 21 states are improving mercury Emissions Michigan IS NOT
- Michigan's Attorney General is actually suing to stop 2008 EPA mercury rules

## D. IS OIL AND GAS FRACKING THE ANSWER ? PROBLEMS WITH FRACKING:

- Fracking uses millions of gallons of water laced with chemicals for each well

- Fermi 3 has the same design as Fukushima
- Fermi 3 would suck up 49 million gallons of Lake Erie water daily

#### F. HOW CLEAN ENERGY FROM WIND AND SOLAR WILL IMPROVE MICHIGAN'S ECONOMY, PROTECT JOBS, HEALTH, AND NATURAL RESOURCES

- The 10% renewable energy mandate has already brought \$100 million to MI
- Passage of the 25% by 2025 clean energy mandate would result in 44,000 jobs
- "25 by 2025" is estimated to save \$1.4 billion annually in health care costs
- Renewable power costs about 30% less to build and produce than new coal plants
- New, clean energy jobs will stay permanently in Michigan
- Michigan currently pays \$1.8 billion annually to import coal
- "25 by 25" mandate limits customer costs increases to maximum of 1% year
- Michigan ranks in top 4 in industrial capacity for wind development (Federal study)
- Wind farms can be located far off shore to protect views, shipping and birds
- MI and U.of M. rank in top 2 nationally for Research & development (N. S.F.)

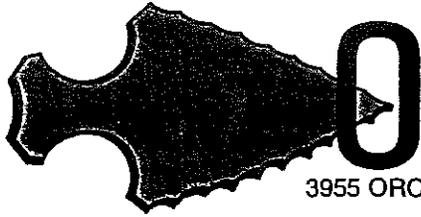
- Some fracking chemicals are carcinogenic or pose a risk to health
- Millions of gallons of surface water are pumped up to 2 miles down. Much is permanently lost.
- Fracking produces air pollution at the surface
- Seismic activity has been reported
- Oil and gas from fracking are fossil fuels which contaminate air and water

#### E. PROBLEMS WITH NUCLEAR POWER

- Nuclear power is not carbon free ( given mining, construction, milling, etc.)
- Nuclear enrichment emits the most potent chemical known to damage the ozone layer (CFC-114 is 9300 times more destructive than CO<sub>2</sub>)
- Releases of radioactive material ( planned and unplanned) bioaccumulate in the food chain, just like DDT
- No safe storage exists for hazardous nuclear waste
- 2000 tons of hazardous nuclear waste is stored along Great Lakes shores
- Nuclear plants are accident prone, with 14 near misses in 2010 ( NRC)
- Nuclear plants are dangerous with a near meltdown in 2002 at Davis-besse near Toledo and in 1966 at Fermi 1 in Monroe.
- Nuclear is expensive with Fermi 3 expected to cost over \$12 billion

- Michigan has 65,000 engineers, specialists and technicians
- Over 100 active solar companies call Michigan home
- New wind farm in Gratiot county generates power for 50,000 homes (Detroit News, 6-7-2012)
- Dow (with Hemlock Semiconductor) will invest more than \$1 billion in solar

CITY OF



# ORCHARD LAKE VILLAGE

3955 ORCHARD LAKE RD. ORCHARD LAKE, MI 48323

(248) 682-2400 FAX (248) 682-1308

## RESOLUTION IN SUPPORT OF IMPROVING THE WATER QUALITY OF OUR INLAND LAKES AND AIR BY CLEANING UP COAL-FIRED POWER PLANTS

**WHEREAS**, the City Council of Orchard Lake Village (hereafter "City") located in Oakland County, Michigan is concerned about the water quality of the inland lakes located within its boundaries and would like to take all reasonable actions to protect and improve the quality of those lakes; and

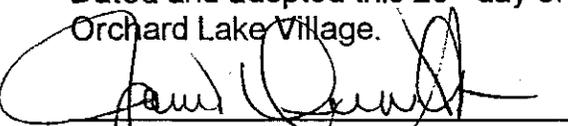
**WHEREAS**, the Michigan Department of Community Health has issued a Health Advisory warning against consumption of certain species of fish, and advising limitation on the consumption of other species from Orchard Lake, Cass Lake or other inland lakes due to mercury contamination.

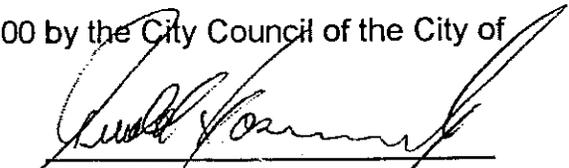
**WHEREAS**, the Department of Environmental Quality estimates that Michigan's coal-fired power plants release approximately 4,200 pounds of mercury into the environment each year, and that it only takes 1/70<sup>th</sup> of a teaspoon of mercury to contaminate a 25-acre lake to the point where fish may be unsafe to eat.

**NOW, THEREFORE** the Orchard Lake City Council, in a regular meeting assembled, does hereby resolve as follows:

1. We urge state and federal governments to expeditiously and substantially reduce emissions of mercury from coal-fired power plants through requiring and promoting cleaner energy, improved emission standards for old coal-fired plants, and energy efficiency.
2. That the City Clerk shall transmit a copy of this resolution to the Governor, our federal representative, State Senator, State Representative, and to the Senate Energy and Technology Committee.

Dated and adopted this 20<sup>th</sup> day of March 2000 by the City Council of the City of Orchard Lake Village.

  
Janet Overholt Green, City Clerk

  
Gerald Kosmensky, Mayor



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MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Anne Sousawis  
Affiliation (if any): \_\_\_\_\_  
Phone: 517 716 3808  
Email: \_\_\_\_\_

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic ~~4~~

(Please specify): fracking

Requested time to speak:  < 5 minutes     5 minutes

Please leave a copy of any written or electronic materials at the welcome center.



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If you wish to speak today, please complete the following:

Name: DEAN SOUSANIS

Affiliation (if any): \_\_\_\_\_

Phone: 810 796 3008

Email: \_\_\_\_\_

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes  5 minutes

Please leave a copy of any written or electronic materials at the welcome center.



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STEVE BAKKAL, DIRECTOR

## Readying Michigan to Make Good Energy Decisions Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: Henry Newman (did not speak)  
Affiliation (if any): SERRA Club & Alliance to Halt  
Phone: 586 360 14998  
Email: HNEWMAN@SBCGlobal.net

FERA 3  
ATAF?

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Nuclear Reactor converted Electricity & Fracking

Requested time to speak:  < 5 minutes  5 minutes

Please leave a copy of any written or electronic materials at the welcome center.

Submitted by HENRY NEWMAN at Gov. Rick Snyder's Detroit  
Energy Forum of 3-25-2013  
Center Line Public Schools Board Trustee

### Nuclear Sample Comments for Michigan Energy Forums

The public comment segment of this forum provides the opportunity to present important facts in reference to a number of the 86 questions posed by the Governor in this process (www.michigan.gov/energy). You will be given about 3 minutes to make your comment. You can also submit supporting documentation at the time or later online.

You have 3 minutes to give a concise and powerful comment:

- 0:00 - 0:30
- Thank Commissioner Quackenbush and Director Bakkal *My name is Henry Newman and I live in Warren, MI*
- State your name and your affiliation (i.e. your business, organization, etc) *I Am a Center Line School Board Trustee and*
- 0:30 - 1:00 *I don't want our Energy production to poison our kids or our environment.*
- What moved you to come here to speak today? What is your personal connection? *SIERRA Club Member.*
- 1:00 - 3:00
- State which question you are answering (Question #1)
- Highlight the answer provided here, integrating - as best you can - your own personal/organizational context.
- Conclude, hand relevant information to Chairs (if available).

### QUESTION #3

How do Michigan's costs for renewable energy compare to the cost of existing generation and to the cost of new non-renewables generation today?

**Answer:** The first wind contract signed under Michigan's Renewable Portfolio Standard was \$116/ MWh or \$0.11 cents per kilowatt hour. The most recent wind contract was \$52/ MWh or \$.05 cents per kilowatt hour.

**Key Message:** Renewable energy and energy efficiency helps rein in rising energy costs.

- The costs of renewable energy keep declining and are expected to continue.
- Michigan companies are driving improvements like higher hub heights, lighter blades, and stronger towers and those advances in technology are dropping energy prices.
- New wind and efficiency in Michigan is cheaper than any fossil fuel generation option, including gas and far cheaper than new nuclear plants.

**Answer Talking Points:** *DTE's proposed Fermi 3 is a gamble we cannot afford; it is both too expensive and dangerous.*

- DTE Energy is proposing to build a new nuclear reactor, Fermi 3. *expensive and dangerous.*
- The current estimated cost of this plant is now close \$20 billion. The rate impact of this plant to ratepayers will be enormous.
- Nuclear energy is not ~~clean energy~~ *unclean, highly and radioactively contaminated*, nor is the energy from the Fermi 3 plant needed.
- There are many safety concerns around the proposed Fermi 3 plant, particularly related to the storage of radioactive waste storage. The waste remains dangerous for millions of years and there is currently no plan for long-term nuclear waste storage.
- Nuclear power uses enormous amounts of water churning up live fish, fish eggs and larvae.
- Instead of putting our health, water and pocketbooks at such risk, we need to invest in clean renewable energy and energy efficiency.
- Increasing Michigan's use of renewable energy and energy efficiency will create jobs, spark investment and will reduce pollution and help protect our public health and livelihoods, right here in our own state. It would be a win-win for all!

Submitted by Henry Newman at Gov. Rick Snyder's Detroit Energy Forum of 3-25-2013  
 I am a School Board Member of Central Ave Public Schools, and also a Soccer Club Member.

### Chapter I. Energy and Water Are Essential, Interdependent Resources

A strategic goal of the United States Department of Energy is

Promoting America's energy security through reliable, clean, and affordable energy (USDOE, 2006a).

The availability of adequate water supplies has an impact on the availability of energy, and energy production and generation activities affect the availability and quality of water. In today's economies, energy and water are linked, as illustrated in Figure I-1. Each requires the other. As these two resources see increasing demand and growing

✓ ? limitations on supply, energy and water must begin to be managed together to maintain reliable energy and water supplies. when water is not available where would a nuclear reactor be? The interaction of energy and water supplies and infrastructures is becoming clearer. An interruption to either the electricity or water supply of Farm 2 could actually result in a meltdown that would require the evacuation of cities like Detroit, Monroe and Toledo.

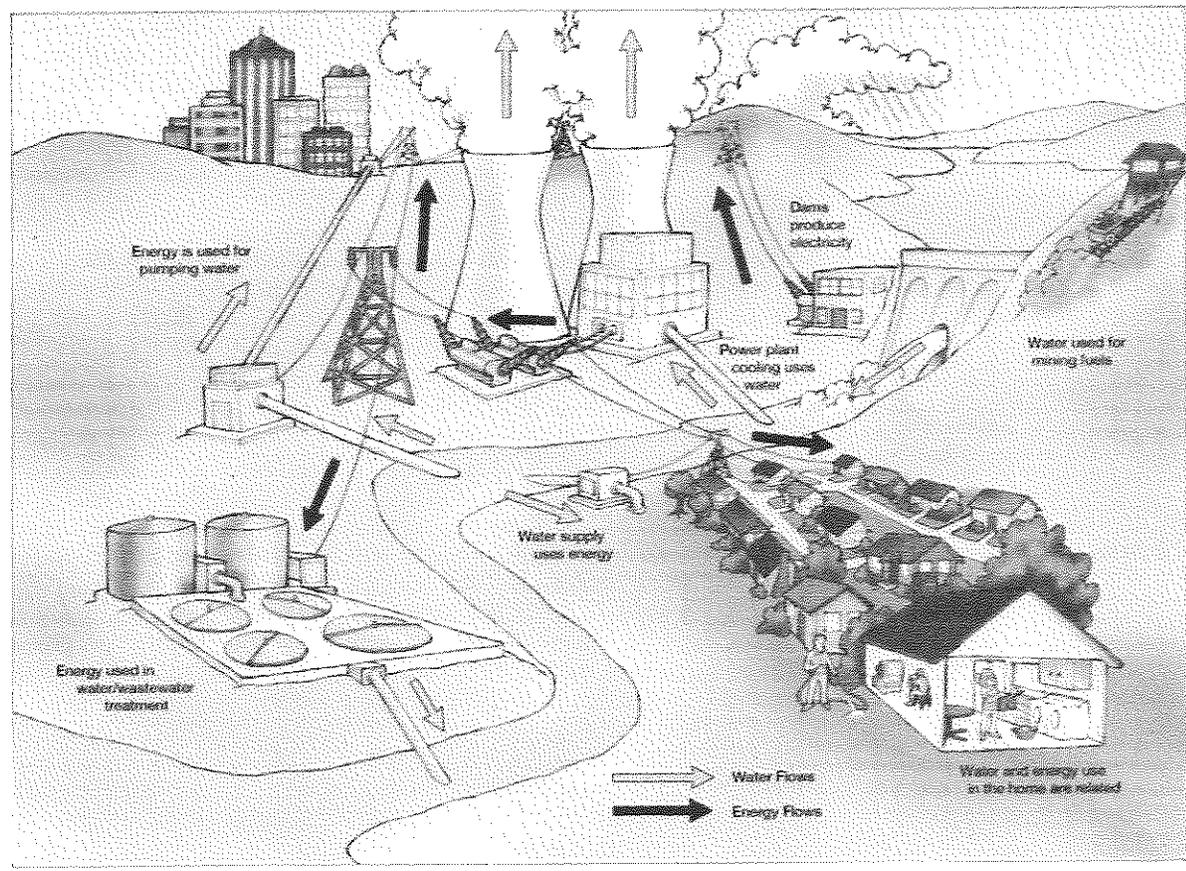


Figure I-1. Examples of Interrelationships Between Water and Energy

## Chapter II. Supplying Energy Requires Water and Impacts Water Quality

Water is used throughout the energy sector, including in resource extraction, refining and processing, electric power generation, storage, and transport. The energy sector also can impact water quality via waste streams, runoff from mining operations, produced water from oil and gas extraction, and air emissions that may affect downwind watersheds. Examples of interactions, both large and small, are shown in Table II-1.

Many energy facilities, such as power plants, mines, and refineries, are very large and can have a significant impact on local water supplies and water quality. For example, water withdrawals for thermoelectric power generation alone are comparable to water withdrawals for irrigation. Each represents about 40 percent of the national

water withdrawals (water that is diverted or withdrawn from a surface-water or groundwater source), as shown in Figure II-1 (Hutson et al., 2004). However, of the 132 billion gallons per day of freshwater withdrawn for thermoelectric power plants in 1995, all but about 3.3 billion gallons per day (3 percent) was returned to the source. While this water was returned at a higher temperature and with other changes in water quality, it was available for further use. In contrast, of the 134 billion gallons per day withdrawn for irrigation in 1995, 81 billion gallons per day were consumed by evaporation and transpiration (60 percent), and another 25 billion gallons per day (19 percent) were reported as lost in conveyance (but may have percolated to a groundwater source and been available for reuse) (Solley et al., 1998).

**Table II-1. Connections Between the Energy Sector and Water Availability and Quality**

Energy Element	Connection to Water Quantity	Connection to Water Quality
<b>Energy Extraction and Production</b>		
Oil and Gas Exploration	Water for drilling, completion, and fracturing	Impact on shallow groundwater quality
Oil and Gas Production	Large volume of produced, impaired water*	Produced water can impact surface and groundwater
Coal and Uranium Mining	Mining operations can generate large quantities of water	Tailings and drainage can impact surface water and ground-water
<b>Electric Power Generation</b>		
Thermoelectric (fossil, biomass, nuclear)	Surface water and groundwater for cooling** and scrubbing	Thermal and air emissions impact surface waters and ecology
Hydroelectric	Reservoirs lose large quantities to evaporation	Can impact water temperatures, quality, ecology
Solar PV and Wind	None during operation; minimal water use for panel and blade washing	

\*Impaired water may be saline or contain contaminants

Energy Element	Connection to Water Quantity	Connection to Water Quality
<b>Refining and Processing</b>		
Traditional Oil and Gas Refining	Water needed to refine oil and gas	End use can impact water quality
Biofuels and Ethanol	Water for growing and refining	Refinery wastewater treatment
Synfuels and Hydrogen	Water for synthesis or steam reforming	Wastewater treatment
<b>Energy Transportation and Storage</b>		
Energy Pipelines	Water for hydrostatic testing	Wastewater requires treatment
Coal Slurry Pipelines	Water for slurry transport; water not returned	Final water is poor quality; requires treatment
Barge Transport of Energy	River flows and stages impact fuel delivery	Spills or accidents can impact water quality
Oil and Gas Storage Caverns	Slurry mining of caverns requires large quantities of water	Slurry disposal impacts water quality and ecology

\*\*Includes solar and geothermal steam-electric plants

with groundwater (Solley et al., 1998). Some aquifers are adjacent to surface waters. When these aquifers are drained, levels of adjacent surface waters decline, and some riverbeds dry out. Other aquifers are isolated from surface waters. Recharge of these aquifers can be very slow, and the water that is being pumped may have taken decades, centuries, or even longer to accumulate. Visible impact of over-withdrawal occurs in some areas as the land surface sinks when the underlying water is removed. Table IV-1 highlights dramatic evidence of groundwater depletion around the country.

Energy facilities dependent on groundwater supplies may have secured exclusive long-term withdrawal permits or may be drawing water from aquifers with multiple users. In either case, if the rate of withdrawal exceeds the rate of recharge, then over time, water must be pumped from ever greater depths. Ultimately, there is a risk that freshwater from the aquifer will become fully depleted, leading to loss of water supplies.

As aquifers are drawn down, they often yield brackish waters; these require treatment before use in a closed-loop cooling system. The increased energy requirements for water pumping and treatment will decrease net plant output and could increase the cost of power.

**POTENTIAL IMPACT OF FUTURE POWER GENERATION ON WATER SUPPLIES**

Figure IV-4 shows the expected increases in power generating capacity from 1995 to 2025, as projected by the AEO2004 reference case (EIA, 2004c). (EIA's reference case is based on business-as-usual trend forecasts, given known current technology, technological and demographic trends, and current laws and regulations.)

The regions where capacity growth is expected are regions with high population growths, as shown in Chapter I, Figure I-2. Many of these areas are already facing water supply limitations, and efforts to build new power plants in these areas are encountering resistance from the public and from government officials because of concerns

**Table IV-1. Examples of Declining Groundwater Levels (Bartolino and Cunningham, 2003)**

<b>Region</b>	<b>Groundwater Decline</b>
Long Island, NY	Water table declined, stream flows reduced, salt water moving inland
West-central Florida	Groundwater and surface water declining, salt water intruding, sink holes forming
Baton Rouge, LA	Groundwater declining up to 200 feet
Houston, TX	Groundwater declining up to 400 feet, land subsidence up to 10 feet
Arkansas	Sparta aquifer declared "critical"
High Plains	Declines up to 100 feet, water supply (saturated thickness) reduced over half in some areas
Chicago-Milwaukee area	Groundwater serving 8.2 million people has declined as much as 900 feet, declining 17 feet/yr
Pacific Northwest	Declines up to 100 feet
Tucson/Phoenix, AZ	Declines of 300 to 500 feet, subsidence up to 12.5 feet
Las Vegas, NV	Declines up to 300 feet, subsidence up to 6 feet
Antelope Valley, CA	Declines over 300 feet, subsidence over 6 feet

**Table V-1. Water Intensity for Various Power Generation Technologies**  
 (EPRI, 2002a; CEC, 2002; CEC, 2006; Grande, 2005; Leitner, 2002; Cohen et al., 1999)  
 See Appendix A for Fuel References

Plant-type	Process	Water intensity (gal/MWh <sub>e</sub> )			
		Steam Condensing		Other Use	
		Withdrawal	Consumption	Withdrawal	Consumption
Coal	Mining				5-74
	Slurry			110-230	30-70
Fossil/ biomass/ waste	OL Cooling	20,000- 50,000	~300	~30**	
	CL Tower	300-600	300-480		
	CL Pond	500-600	~480		
	Dry	0	0		
Nuclear	Mining and Processing				45-150
Nuclear	OL Cooling	25,000- 60,000	~400	~30**	
	CL Tower	500-1,100	400-720		
	CL Pond	800-1,100	~720		
	Dry	0	0		
Geothermal Steam	CL Tower	~2000	~1400	Not available	
Solar trough	CL Tower	760-920	760-920	8**	
Solar tower	CL Tower	~750	~750	8**	
<b>Other</b>					
Natural Gas	Supply				~11
Natural Gas CC	OL Cooling	7,500- 20,000	100	7-10**	
	CL Tower	~230	~180		
	Dry	0	0		
Coal IGCC*	CL Tower	~250	~200	7-10 + 130 (process water)**	
Hydro- electric	Evaporation				4500 (ave)

Mining of coal consumes 0.07 to 0.26 billion gallons per day

Thermo-electric power generation withdraws 136 billion gallons per day and consumes 3.3 billion gallons per day

OL = Open loop cooling, CL = Closed Loop Cooling, CC = Combined Cycle  
 \*IGCC = Integrated Gasification Combined-Cycle, includes gasification process water  
 Other Use includes water for other cooling loads such as gas turbines, equipment washing, emission treatment, restrooms, etc.  
 \*\*References did not specify whether values are for withdrawal or consumption.

Submitted by Henry Newman  
at Gov. Rick Snyder's Detroit  
Energy Forum  
of 3-25-2012



**SIERRA CLUB**  
FOUNDED 1892

We need a "Feed-In-Tariff" such as  
the one that has been helping Germany  
develop Renewable  
Energy at an excellent  
Rate.

**Southeast Michigan Group**  
[www.michigan.sierraclub.org/semg](http://www.michigan.sierraclub.org/semg)

### LOSE NUKES & GET FIT (Feed-In-Tariff)

#### Nuclear Power is not the answer to global warming

1. **Not carbon free** when you consider the life cycle of prospecting, mining, milling, enriching and construction. The life cycle of uranium leaves a trail of human exposure to deadly radiation. The largest single user of electrical power in the U.S. is the enrichment plant in Paducah, KY.
2. Every nuclear power station has both planned and unplanned releases of radioactive isotopes to the air and to the water. Many of these bioaccumulate in the food chain, just like DDT.
3. After 60 years there is still no final depository for high-level waste. Currently nearly **2,000 tons of lethal radioactive wastes, biohazardous for millions of years**, are being stored in pools of water or dry casks along the shores of the Great Lakes.
4. Nuclear plants are dangerous; Davis-Besse near Toledo had a **near meltdown in 2002**. Fermi 1 near Monroe, MI was the subject of a 1974 book "We almost Lost Detroit" about the near melt-down in 1966 (still not totally cleaned up and decommissioned). Out of 104 U.S. reactors there were **14 near misses in 2010 according to the NRC**.
5. Not affordable- Fermi 3 proposed by DTE is estimated to cost \$12 + billion and take 10 - 15 years to build. Nuclear industry relies on huge taxpayer subsidies and could increase **electric rates by 40%**.
6. **Not needed**—DTE's forecast is a **sales decline for electricity every year through 2020** in part due to the bad economy, loss of population, energy efficiency programs and renewables coming on line. And this is with only a tepid 10% Renewable requirement and 1% per year energy efficiency target, which is much lower than most states and countries. **We can do even better.**

#### FIT FACTS

According to a study in Scientific American (Nov. 2009), it is possible to get all energy from wind, water and solar by 2030 with present technology. How to get there? - With a **Feed-In-Tariff (feed in tariff)**.

A FIT allows homeowners, farmers, and businesses to sell renewable energy into the electrical grid for a reasonable profit with only a modest increase in electric rates. A FIT is the **most effective and least costly method to accelerate renewable energy according to U.S. Dept. of Energy**. Over 80 countries, the state of Vermont, Gainesville, FL public utility and recently Ontario have adopted versions of FIT.

A well-designed FIT attracts manufacturers and suppliers of renewable energy. Ontario's FIT passed last year has already attracted 60 suppliers and manufacturers. Ontario expects to create 70,000 jobs in solar alone. **Germany, the originator of the FIT concept claims over 300,000 jobs created because of the FIT**. The Ontario government has promised to shut down North America's largest coal plant at Nanticoke and has canceled 4 new nuclear proposals, but unfortunately is proposing 2 new nukes.

**Michigan is especially fit for a FIT.** - Good wind especially offshore, more sunlight than even Germany, industrial infrastructure, trained workers, and a rising renewable sector. Wind and solar manufacturers are already here. **Let's keep Michigan dollars in Michigan** instead of purchasing dirty coal from Appalachia and Wyoming and uranium from Canada and Australia.

I am also a  
CLAS BOE Trustee.

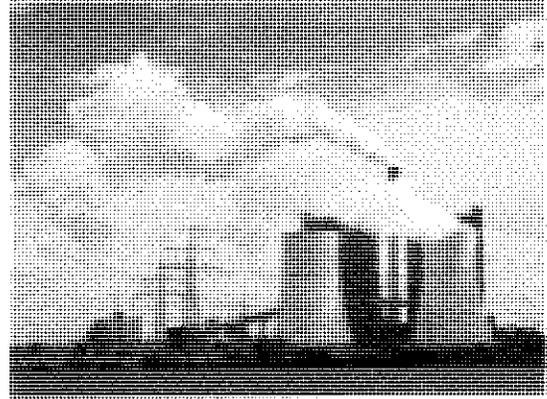


## Recirculating cooling

While once-through cooling systems withdraw 25,000 to 60,000 gallons of water for each megawatt-hour of electricity produced, recirculating cooling systems, also known as closed-cycle cooling systems, withdraw only 800 to 2,600 gallons per megawatt-hour and are used when nearby water sources lack sufficient volume to allow once-through cooling. After water is withdrawn from a source to cool steam, it is then cooled and pumped back into the condenser for reuse. Though plants with closed cycle cooling systems withdraw far less water than once-through cooling systems, they consume (through evaporation) about 600-800 gallons per megawatt-hour, roughly half the amount they withdraw.

## Other water uses for nuclear power

While cooling systems account for the vast amount of water withdrawn by nuclear power plants, fuel extraction and refining have also impacted water sources. Uranium fuel extraction, for example, requires 45-150 gallons of water per megawatt-hour of electricity produced and uranium mining has contaminated surface or ground water sources in at least 14 states.<sup>viii</sup> Additionally, nuclear power plants intake water to cool service equipment, such as chillers for air conditioning units or lubricating oil coolers for the main turbine. Service water system flow rates can range from 13,500 to 52,000 gallons per minute depending on the season and the power plant.<sup>ix</sup>



## Nuclear power in a warming world

Water cooling systems can also pose significant problems from an economic standpoint. When water is warmed, either by plant discharge or ambient temperatures, cooling requires even more water and power plants operate less efficiently. Moreover, if water cannot be cooled, it can neither be recirculated nor returned to the river, lake or ocean without threatening aquatic life. Therefore, during hot summers or heat waves, the problem compounds: during times of extreme heat, nuclear power plants operate less efficiently and are dually under the stress of increased electricity demand from air conditioning use. When cooling systems cannot operate, power plants are forced to shut down or reduce output. The combination of high electricity demand and reduced output can result in higher energy prices for ratepayers. Droughts can have a similar effect as heat waves, limiting the amount of water available for cooling.

<sup>i</sup> U.S. Energy Information Administration. *Electricity in the United States*. 2009.

<sup>ii</sup> Averyt, et al. *Freshwater use by U.S. Power Plants: Electricity's Thirst for a Precious Resource*. Union of Concerned Scientists, EW3, 2011.

<sup>iii</sup> Lochbaum, David. *Got Water?* Union of Concerned Scientists, 2007.

<sup>iv</sup> Union of Concerned Scientists. *How it Works: Water for Nuclear*, 2010.

<sup>v</sup> Palo Verde nuclear power station buys treated wastewater to use in its recirculating cooling system. It is the only nuclear power station not located near a body of water.

<sup>vi</sup> UCS, 2007.

<sup>vii</sup> UCS, EW3, 2011.

<sup>viii</sup> UCS, EW3, 2011.

<sup>ix</sup> UCS, 2007.

The Union of Concerned Scientists is the leading science-based nonprofit working for a healthy environment and a safer world



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© UCS December 2011

Submitted by Henry Newman at Gov. Rick Snyder's Deficit  
Fracturing (Be) Energy Forum of 3.25.2012

## High Volume Slickwater Horizontal Hydraulic Fracturing Talking Points for Michigan Energy Forums

The public comment segment of this forum provides the opportunity to present important facts in reference to a number of the 86 questions posed by the Governor in this process ([www.michigan.gov/energy](http://www.michigan.gov/energy)). You will be given about 3 minutes to make your comment. You can also submit supporting documentation at the time or later online.

**You have 3 minutes** to give a concise and powerful comment:

- **0:00 - 0:30**
- Thank Commissioner Quackenbush and Director Bakkaal
- State your name and your affiliation (i.e. your business, organization, etc)
- **0:30 - 1:00**
- What moved you to come here to speak today? What is your personal connection?
- **1:00 - 3:00**
- State which question you are answering (Question #1)
- Highlight the answer provided here, integrating - as best you can - your own personal/organizational context.
- Conclude, hand relevant information to Chairs (if available).

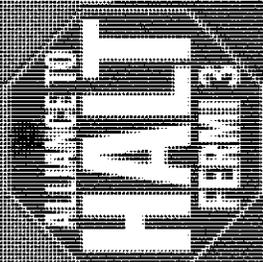
### QUESTION #10

*Renewable Energy Question #10- What are the current and projected relative costs of existing and new builds for wind, solar, hydro, biomass, landfill gas, coal, natural gas, nuclear, and other sources? How would those differ if placed in another jurisdiction electrically tied to Michigan?*

#### Answer Talking Points:

- The extraction of oil and natural gas by hydraulic fracturing, which can use up to <sup>20+</sup> ~~10s of~~ millions of gallons of fresh water laced with toxic chemicals, puts our livelihoods and economy, and even our health at risk. Accidental catastrophes such as well casing breaches, tanker truck accidents, well pad liner leaks, and many others, put our water at risk.
- The natural gas and oil industry is purposefully ruining Michigan's greatest most precious asset by intentionally injecting our clean water, made toxic with chemicals, deep underground, and disposing of it like a used paper cup. But it doesn't have to be this way.
- Instead of putting our water and our state at such risk, we need to invest in clean renewable energy and energy efficiency.
- Increasing Michigan's use of renewable energy and energy efficiency will create jobs, spark investment and will reduce pollution and help protect our public health and livelihoods, right here in our own state. It would be a win-win for all!

Who is



ALTHO is a group of concerned people and organizations dedicated to the abandonment of DTE Energy's plans to construct a third nuclear reactor near Monroe, MI. ALTHO is also committed to the shutdown of the existing Fermi 2 nuclear plant as soon as possible.

### Our Mission Statement

Alliance to Halt Fermi 3 is dedicated to halting DTE from building Fermi 3, a proposed nuclear reactor.

We will use targeted messaging, a grassroots campaign with paid media and other strategies to reach the public press and politicians.

We are opposed to the expensive, unstable and deadly nuclear contamination of the Great Lakes and its people. We support clean energy, good jobs, and non-violent resistance to nuclear power plants and all parts of the system.

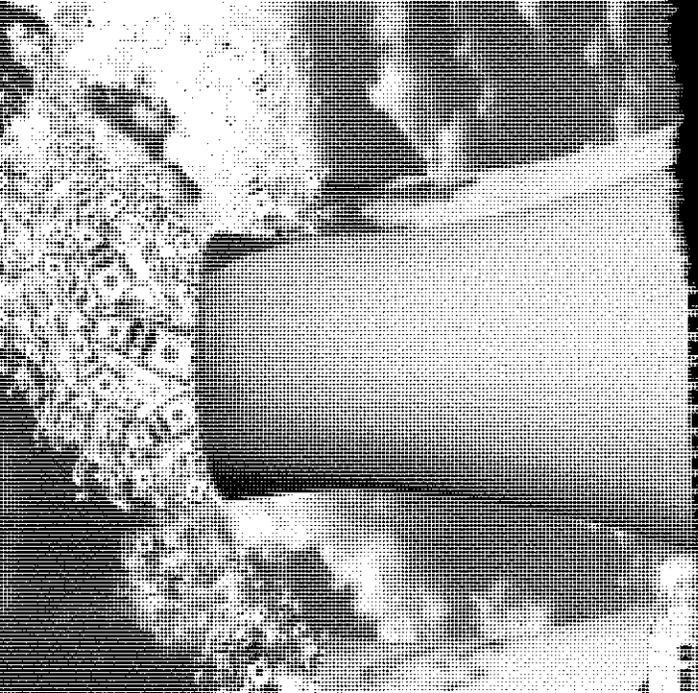
## FERMI 3 IS A GAMBLE WE CANNOT AFFORD!



ALLIANCE TO HALT FERMI 3  
P.O. BOX 511001  
LIVONIA, MI 48151

*Submitted by Henry Meadows  
at Governor Rick Snyder's Office  
Energy Policy*

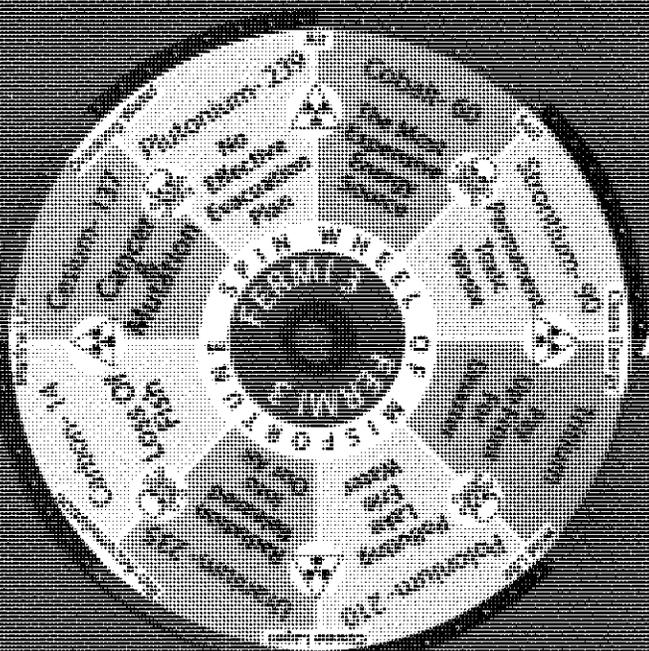
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# FERMI 3 IS A GAMBLE WE CANNOT AFFORD!

# NUCLEAR ENERGY: Too Expensive and Dangerous!

Over the past few years, the nuclear industry has been spending billions of dollars to lobby Congress and the courts to keep the nuclear industry from being regulated. The industry has been successful in getting the Nuclear Regulatory Commission (NRC) to issue licenses for new nuclear power plants without requiring the industry to pay for the cost of the license. The industry has also been successful in getting the courts to rule that the NRC's regulations are unconstitutional. The industry has also been successful in getting Congress to pass laws that exempt the industry from the same regulations that apply to other industries. The industry has also been successful in getting the courts to rule that the industry is not liable for the cost of the license. The industry has also been successful in getting the courts to rule that the industry is not liable for the cost of the license. The industry has also been successful in getting the courts to rule that the industry is not liable for the cost of the license.



**The Form 3  
Wheel Of Misfortune:  
Any Way You Spin It, We LOSE!**

Do you want to be  
\$15,000,000,000 or more that  
GE-Health's economic engine  
is pulling water from the safety  
of ally companies? **No!**

Throw the dice or spin the wheel  
this nuclear gamble's for real!

MEMBERSHIP FORM 3  
PROSPERITY FUND  
1000 14th Street  
Washington, DC 20004

**Yes!**  
I WANT TO JOIN THE ALLIANCE!  
LET'S STOP GAMBLING ON  
NUCLEAR ENERGY TOGETHER!

Your charitable donation is tax deductible.  
Please make checks out to Prosperity  
Fund and attach in the memo  
line. Thank you!

Name/Organization

Address

Telephone:

Email:

Membership per year

- \$10 Student/Retired 99%
- \$25 Individual
- \$100 Organization
- \$ Other

Submitted by Harvey Newman,  
CLAS School Board Trustee 3-25-2013



**SIERRA CLUB**  
FOUNDED 1892

**Southeast Michigan Group**

[www.michigan.sierraclub.org/SEMG](http://www.michigan.sierraclub.org/SEMG)

For more information please visit the Fermi 3 Comments Page at Beyond Nuclear - Strong resistance mounted against Fermi 3 new reactor proposal in Monroe, Michigan

<http://www.beyondnuclear.org/new-reactors/2012/2/3/strong-resistance-mounted-against-fermi-3-new-reactor-propos.html>

**HALT FERMI 3**

**Detroit Edison is proposing to build a new nuclear reactor, Fermi 3, in Monroe, MI** next to the operating Fermi 2 and the failed Fermi 1. We denounce the recent high profile public relations campaign that has been convincing the public, and media, that nuclear power is the answer to global warming. Not true, nuclear plants cause significant impacts to global warming and the environment while being outrageously expensive.

**Nukes Are Not Carbon Free.** Presently the enrichment process alone is highly energy intensive and emits CFC-114; which is (as a global warming gas) 9,300 times more destructive than CO2, lasts 300 years in the atmosphere, and is the most potent chemical known to damage the ozone layer. Construction of Fermi 3 will require as much concrete as was used to build the Pentagon, as much steel as was used to build the Empire State Bldg., 300 miles of wiring, 44 miles of pipes all with a huge carbon footprint.

**Nuclear plants use vastly more water** for cooling than coal plants. Recent droughts causing lower water levels have shut down nuclear plants both in Europe and the U.S. Fermi 3 is predicted to suck up 49 million gallons of Lake Erie water per day; **discharging 17,000 gal./minute of 96° F heated water** to the lake. Meanwhile, **another 17,000 gal./minute will be emitted to the air as water vapor**, itself a global warming gas.

**Loss of Fish.** The western Lake Erie basin is the shallowest, warmest, and still the most productive, fishery of all the Great Lakes. In an eight-month 2008 study, Fermi 2's cooling water intake sucked up over 62 million fish eggs and larvae, and over 3,000 live fish. DTE proposes putting the Fermi 3 intake next to that of Fermi 2.

Several studies point to **increased cancer rates** near nuclear sites including a 31% increase in cancer rates among young people in Monroe since Fermi 2 started operation.

**DTE, for more than 60 years, has been producing waste that remains deadly for millions of years** and there is **STILL NO STORAGE SOLUTION FOR HIGH LEVEL WASTE**. DTE's best solution for, so called, "Low" and "intermediate" level waste is to store it on site. **We think their best solution would be to halt production of this waste!**

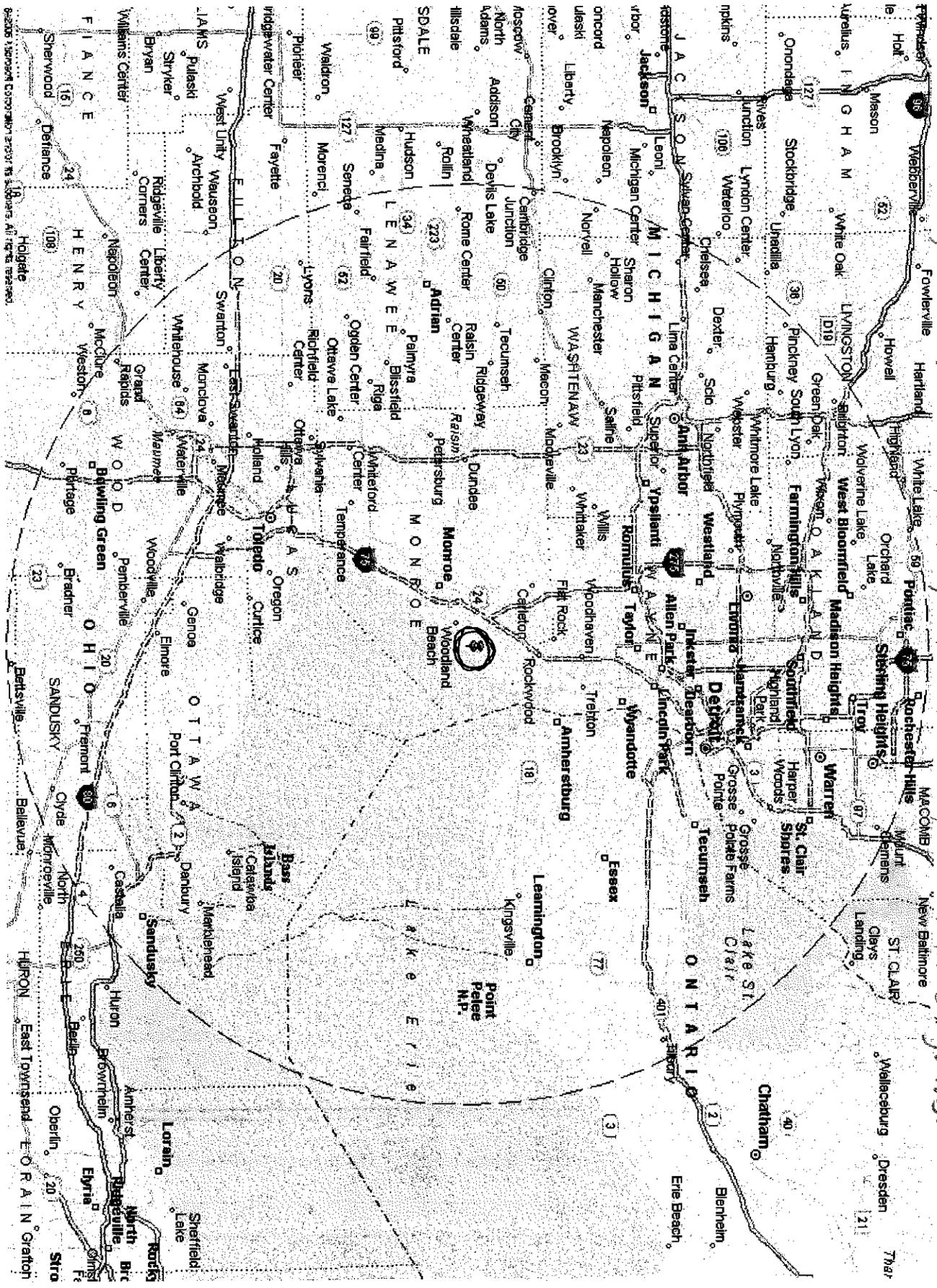
**Not Affordable / Not needed.** Fermi 3 is **projected to cost \$15 Billion to build** (even before expected cost overruns), and will require billions in government loans and rate increases. **AND**, there is no need for it! **DTE recently acknowledged before the Public Service Commission that demand for electricity will drop every year through 2020.** **Instead of investing in risky, dangerous, nuclear reactors, we should invest in strong energy efficiency programs, and clean energy** (such as wind and solar). **DTE, save our planet, and consumer dollars, while creating sustainable jobs!**

(See map on Reverse side of the 50 mile evacuation zone.)

*Environmental Policy -  
a GE Hitachi ESBWR  
so called, Economically Simplified  
Boiling water  
Design  
A very  
expensive and dangerous way  
to boil water for only a short time  
then  
recycle it  
standards  
that to be  
followed.*

Say "No!" to Nuclear Reactors - If a word has been used in a problem you don't need the certificate with the residents of multiple counties. submitted by Henry Newman 3.25.2013

50 mi. evacuation zone for Fermi 2 & Future Fermi 3 reactors  
Fermi 3 is a gamble we cannot afford, it's both too expensive & too dangerous.



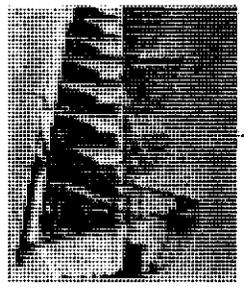
BASED UPON 1990'S CENSUS DATA FOR THE STATES. ALL RIGHTS RESERVED.

3-28-2013 Submitted by Henry Newman, at Gov. Rick Snyder's request for a map of the Great Lakes region showing the locations of nuclear power plants and uranium processing facilities. The map is intended for use in a public school book review.

MINNESOTA

LAKE SUPERIOR

This is a National Radiation "Hot Spot" map of the Great Lakes Basin. A melt down, or other major problem at any one of these reactors could present a poison for the Great Lakes and Michigan needed by millions of residents, or worse!

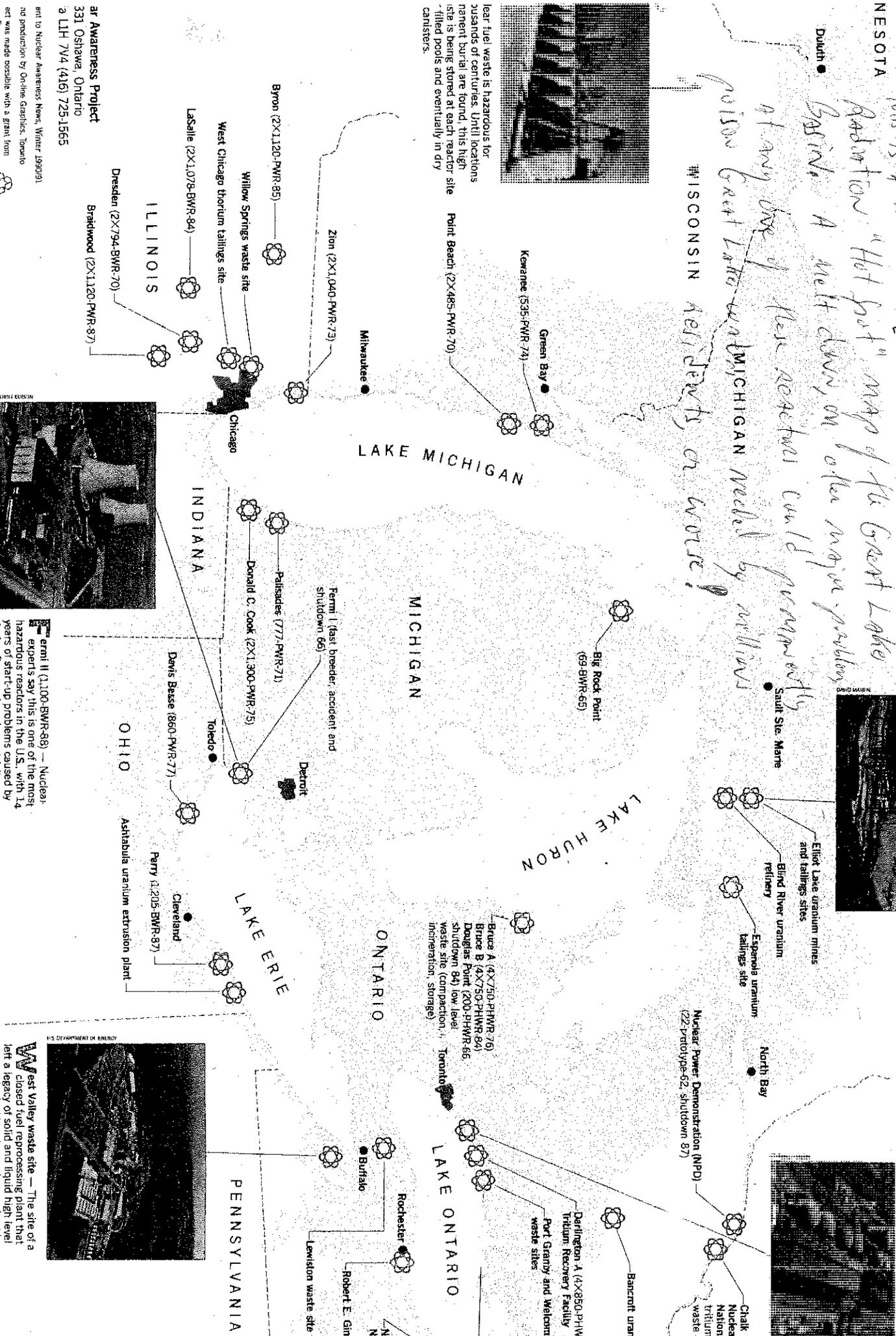


Near fuel waste is hazardous for thousands of centuries. Until permanent burial are found, this high site is being stored at each reactor site - filled pools and eventually in dry canisters.

For centuries, has been dumped near the mines and left exposed to wind and water erosion.



Each stage of the nuclear fuel chain has its own enormous amounts of radioactivity from these sites add to the degradation. A major accident at any one facility could have a devastating catastrophic accident is avoided, these nuclear hotspots generations to come.



Print to Nuclear Awareness News, Winter 1990/91. No production by On-line Graphics, Toronto. Act was made possible with a grant from...



Fermi II (1100-BWR-86) - Nuclear experts say this is one of the most hazardous reactors in the U.S. with 14 years of start-up problems caused by...



West Valley waste site - The site of a closed fuel reprocessing plant that left a legacy of solid and liquid high level...

Submitted by Henry Newman at Gov.  
 Rich Snyder's Detroit Energy Forum 1.3.25.2013  
 A CLAS B & E Trustee

# THE ACTIVIST



SOUTHEAST MICHIGAN GROUP OF THE SIERRA CLUB

## Deep trouble: Nuclear waste burial in the Great Lakes basin

By Jim Bloch *Fermi 3 & Co. We cannot afford*

The second largest nuclear power facility in the world, the 1,300-acre Bruce Power Generating Station, sits in Kincardine, Ontario, near the base of the Bruce Peninsula on Lake Huron. An accident at one or more of the Bruce's eight reactors on the scale of Chernobyl in the old Soviet Union in 1986 would be catastrophic to the Great Lakes, which contain about 20 percent of the world's fresh surface water.

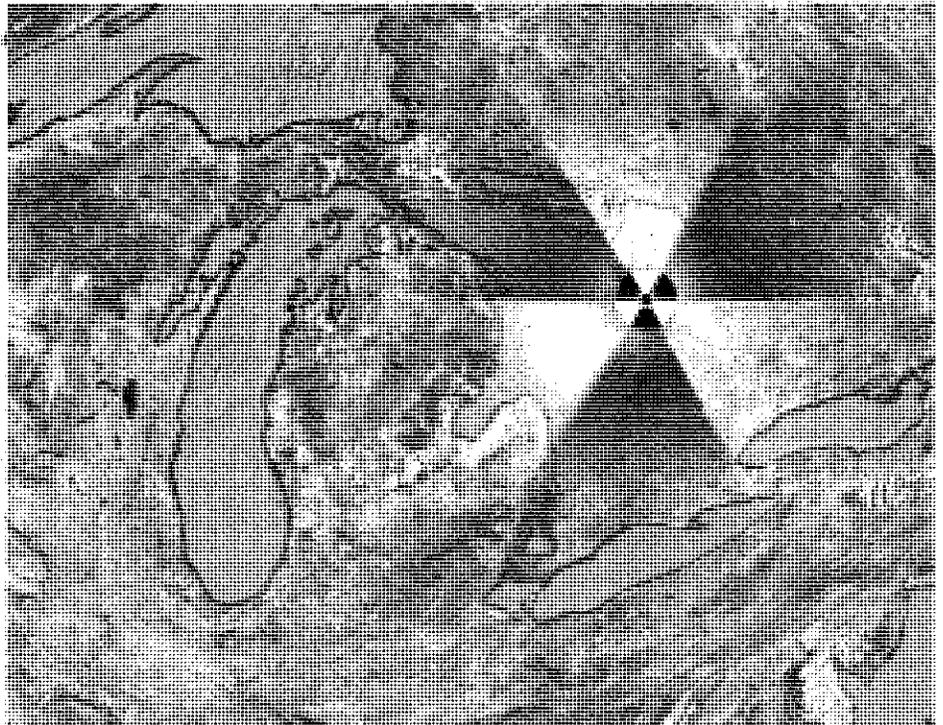
"There is no acceptable level of exposure to radioactivity," said Brennan Lloyd, a community organizer for the Ontario anti-nuclear group Northwatch.

Exposure to ionizing radiation can damage cells, tissues and DNA, causing mutations, cancer, birth defects and a host of other disorders.

On Sept. 30 at St. Clair County Community College, Lloyd and John Jackson, interim director of Great Lakes United, discussed the dangers to the lakes posed by nuclear power and nuclear waste. The SC4 Green Team and Blue Water Sierra sponsored the talk, which was attended by about 40 people.

### Deep geologic repository

"Nuclear waste is created at every step of the nuclear fuel cycle," said Lloyd,



from uranium mining and milling to fuel enrichment and fabricating and finally to nuclear fission in reactors.

Ontario Power Generation operates the Western Waste Management Facility, located in Tiverton, next door to the Bruce station. WWMT stores all of the

*continued on page 4*

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## A Plus for You and the Earth

**Thank You to our Kroger Community Rewards Participants!**

As of October 2012 there were 41 SEMG members and what they have raised over \$1,130!

Enrolling in Kroger Rewards Program is easy, convenient and is FREE money to the SEMG! Simply go to <http://www.kroger.com/rewards/plus> and

Click on Michigan and email, then enter our SEMG number: 824150 "The Sierra Club Foundation" will appear next to the number!

**Enrolling for the first time or re-enrolling (must do so in April of each year)**

Your Executive Committee has designated these funds for Community Service projects and our Inland City Outings Program, soon to be up and running.

Would you like to help out with our Inland City Outings Program, which will be starting from the ground up? Contact Maggie Deavenport at [mdeavenport@sierraclub.org](mailto:mdeavenport@sierraclub.org)

Submitted by *HENRY NEWMAN*  
*WARREN MI Detroit Forum*  
*March 25, 2013*

## Governor's Energy Forums: Sample Comments

### Renewable Energy

- Renewable energy can provide rate stability through the use of long-term fixed cost contracts.
- The Illinois Power Agency found its renewable energy standard, which is higher than Michigan's, played a "dramatic role in reducing electric energy prices" and saved \$176 million.
- The use of renewable energy to generate power utilizes more Michigan made goods and Michigan workers than non-renewable energy.
- The use of renewable energy can significantly reduce public health cost and damages for Michigan residents.
- Expanding Michigan's use of clean energy will diversify our energy sources and creates more choices, and builds upon our manufacturing strength, talent and know-how.
- Michigan is falling behind in the clean energy race.
- Nearly 30 other states have stronger renewable energy and energy efficiency goals than Michigan.
- Michigan's clean energy sector supports 20,500 jobs and \$5 billion in economic activity.
- Michigan currently gets nearly 60 percent of its electricity from coal, all of which is imported from other states. Michigan sends \$1.7 billion a year – and the jobs it creates – to other states.
- Expanding renewable energy and energy efficiency will create more jobs for Michigan workers than maintaining the status quo.

### Energy Efficiency

- Investments in energy efficiency are the least expensive way to meet future energy demand.
- Investments in energy efficiency help reduce overall rates by decreasing the need for new generation capacity.
- Investments in energy efficiency can reduce rates by reducing the need for energy during peak usage periods when the marginal cost of energy is the highest.
- Investments in energy efficiency use more Michigan workers than generating energy.
- Investments in energy efficiency keeps more energy expenditures within the state.
- Investments in energy efficiency reduce the need for energy during peak usage periods, when energy costs are the highest, and are the least expensive way to meet future energy demand.

### **The Cost of Coal to Michigan**

- Michigan families bear the brunt of the state's overreliance on coal, including double-digit rate increases last year alone. Renewable energy and energy efficiency helps rein in rising energy costs.
- The Michigan Public Service Commission has already determined renewable energy is cheaper than new coal generation.
- Michigan's dirty and outdated coal plants emit dangerous levels of mercury, sulfur dioxide and arsenic, which are linked to heart disease, childhood asthma, lung disease and premature death.

### **Regulatory Reform**

- Our current system of regulation is not effectively placing downward pressure on energy costs.
- Our current system of regulation is underutilizing information technology.
- Our current system of regulation does not require utilities to justify energy investments to the extent necessary to control costs.



## Energy Saving Tips for the Home

To produce the energy that powers America's homes we depend on a dangerous and expensive mixture of fossil fuels and nuclear power. But for nearly all the thousands of ways we use energy, we have the technology to use less - reducing pollution and lowering our energy bills. Listed below are ways that you can help to reduce pollution and the amount of money coming out of your pocketbooks each year.

\$ - inexpensive, \$\$ - moderate, or \$\$\$ - expensive  
Remember that all steps will save you money in the long run!

### WATER HEATER

#### \$ - DRAIN IT

Turn your water heater off completely once a year. Turn water on and off alternately for a bout 20 seconds from both the hot and cold facets. This will help clean out the sediment and flush out materials from inside the tank.

#### \$\$ - HOT WATER HEATER INSULATION

The standard hot water heater is on all the time; adding extra insulation will save more energy than you think. Most hardware stores sell pre-made insulator "jackets" that can be easily wrapped around one's water heater. Adding insulation to your water heater and any exposed pipes can knock up to 15 percent off the costs of heating water.

#### \$ - 121 DEGREES IS PERFECT

Though you need to keep your water heater above 120 degrees to prevent bacteria from building up, many hot water heaters are set too high. A family of four, each showering for five minutes, uses about 700 gallons of water a week.



By lowering the thermostat, you can cut water heating bills without sacrificing comfort.

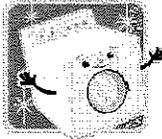
#### \$ - TURN IT OFF

Turn off hot water when you don't need it. Don't let it run when you wash or shave. Fix defective plumbing or dripping faucets. A single dripping hot water faucet can waste 212 gallons of water a month. That can increase your water bill and your energy bill.

### APPLIANCES

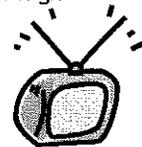
#### \$ - COLD WATER, CLEAN PLANET

Modern washing machines and detergents can clean clothes effectively in cold water - which means you don't have to waste energy by using hot water. Another way you can save energy in your washer-dryer and your dishwasher is to always wash full loads.



#### \$\$\$ - HIGH DEFINITION

If you are considering buying a new high definition TV, keep in mind that, for a comparable screen size, the LCD type of TV typically uses only half the electrical energy of a plasma or projection TV.



#### \$ - DEFROST YOUR FREEZER

The frost and ice that builds up in your freezer over time does more than make it hard to get to your ice cream - it also causes your freezer to work harder to keep the freezer at a cold temperature. By routinely defrosting your freezer, you can keep your ice cream cold and the planet cool.

#### \$\$\$ - BE AN ENERGY STAR

Though buying a new appliance isn't cheap, replacing an old appliance, like a refrigerator, washing machine, or furnace with a new, energy efficient model can significantly cut your energy bill. Look for the Energy Star label as a minimum; some models can be even more efficient.

### HEATING and COOLING

#### \$ - INSULATE

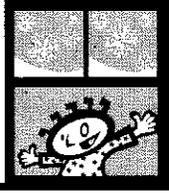
Appropriate insulation can increase comfort and reduce heating costs up to 30 percent. 15 inches of insulation is recommended for attics in Michigan. To insulate leaky windows, use transparent film during the colder months to keep the heat in and the cold out.

#### \$\$ - DUCT WORK

You can also save money and cut pollution by having your heating vents and ducts cleaned regularly. Also getting your furnace serviced yearly can save up to 1-2% per year.

## HEATING and COOLING "con't"

### \$\$\$ - REPLACE OLD WINDOWS



If all windows were as efficient as the best products now widely available in the marketplace, the average household would save \$150 a year, and reduce its carbon dioxide emissions by about 4,300 pounds per year. So, if you have been putting off replacing those old windows, think of the long term savings and buy them today!

### \$ - CLOSE THE VENTS

Close heat registers and turn off radiators in unused rooms, such as a spare bedroom, attic, basement and storage areas to save 5 to 10 percent on your heating costs.

### \$ - SWEATERS ARE IN THIS SEASON

You can make a big difference in your heating bill by keeping your home at a slightly lower temperature. Lowering your thermostat **one degree** can cut as much as 3% of your heating bill. Throw on a sweater or blanket instead.

### \$ - AIR CONDITON CONDITONS

Buy a conditioner that is the right size for the space you are cooling and make sure when you install it is in the shade - air conditioners work harder when in direct sunlight. Make sure to close air vents so air does not escape and use a fan to circulate the air.

### \$\$\$ - UPGRADE YOUR HEATING SYSTEM

If just one in ten households used current technology to upgrade their inefficient heating systems, we could keep 17 billion pounds of pollution out of the air.

### \$ - CAULKING THE GAPS

Heating one's home is the single largest use of energy for the average customer. Tiny gaps and cracks in an older home are roughly equivalent to a one-foot square hole punched in your wall, which means that sealing gaps with caulking and weather stripping makes a big difference in keeping the heat inside your home and saves you money.

## LIGHTING

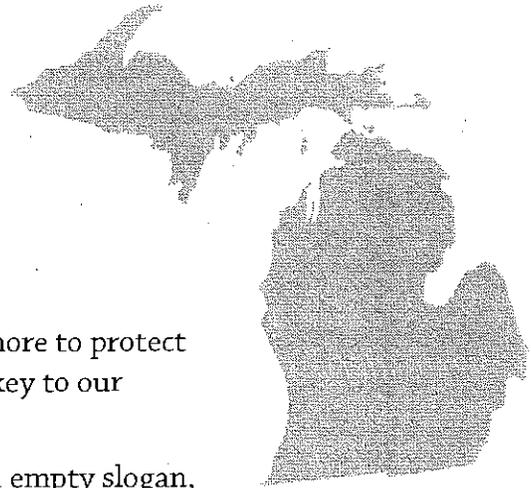
### \$ - \$\$ MOTION DETECTORS: SAVES MONEY, STOPS THIEVES

Outdoor lights that are left on all night can add unnecessary waste energy and disturb wildlife. You can safely and efficiently light the outside of your home by installing light fixtures that are activated by motion sensor or a timer. These devices will keep areas well lit when you need them to be while reducing your energy bill. Plus, they can help to deter unwanted intruders.

### \$ - REPLACE OLD BULBS

If every household in the U.S. replaced one light bulb with a compact fluorescent light bulb (CFL), it would prevent enough pollution to equal the removal of one million cars from the road. Compact fluorescent light bulbs use one third as much electricity as standard incandescent. Though fluorescents may be more expensive to buy, but they last up to ten times as long as regular light bulbs. Look at the savings in the chart below!

INCANDESCENT vs. COMPACT FLUORESCENT BULBS From the US Department of Energy, Energy Information Administration		
Bulb Type	100W Incandescent	23W Compact Fluorescent
Purchase Price	\$0.75	\$5.00
Life of the Bulb	750 hours	10,000 hours
Number of Hours Burned per Day	4 hours	4 hours
Number of Bulbs Needed	About 6 over 3 years	1 over 6.8 years
Total Cost of Bulbs	\$4.50	\$5.00
Lumens Produced	1,690	1,500
Total Cost of Electricity (8 cents/kilowatt-hour)	\$35.04	\$8.06
Your Total Cost over 3 years	\$39.54	\$13.06
Total Savings over three years with the Compact Fluorescent:		\$26.49



# 2013 Michigan Water Protection Agenda

The promise of "Pure Michigan" means Michigan must do more to protect our invaluable water. Water not only defines our state, it is key to our economy and to our Great Lakes way of life.

In order to assure that "Pure Michigan" is more than just an empty slogan, the following is a list of Clean Water Action's top priority issues to be addressed by Michigan's legislature in the 2013-2014 Legislative Session, including policies that achieve: energy choices that are more protective of water and agriculture, improved public health, clean beaches and safe drinking water, abundant habitat for fish and wildlife, and a commitment to the state agencies that work to make Michigan pure.

Clean Water Action will post ongoing updates on our website to the 2013 Michigan Water Protection Agenda. Moreover, when legislation is passed that either moves forward Michigan's environmental protections or diminishes existing safeguards, Clean Water Action tracks that legislation, scores lawmakers' votes, and reports the data to our membership. For example, see <http://cleanwater.org/feature/fall-2012-legislative-scorecard>.

## PRIORITY POLICIES CHECKLIST

### 1 Make energy choices that protect the Great Lakes, support Michigan's agricultural economy, and create jobs

- Increase the state's clean energy and energy optimization standards.
- Promote the use of electric vehicles.
- Address the risks of natural gas extraction using fracking.
- Invest in Michigan workers by supporting Green to Gold.

### 2 Improve people's health

- Keep contaminants out of drinking and surface water by ensuring proper disposal of industrial waste like coal ash, and strengthening protections from contaminated brownfield sites.
- Protect children from toxic chemicals.

### 3 Ensure clean beaches and safe drinking water

- Reduce sewer overflows and leaking septic systems.
- Reduce polluted stormwater runoff.

### 4 Retain abundant habitat for fish and aquatic wildlife

- Protect Michigan's remaining wetlands.
- Restore safeguards for coastal habitats.

### 5 Stand up for "Pure Michigan"

- Ensure adequate funding for environmental programs, *to MDEQ & MSNR*
- Strengthen and enforce environmental safeguards.

*Keep Coal & Nuclear Reactor wastes out of it*

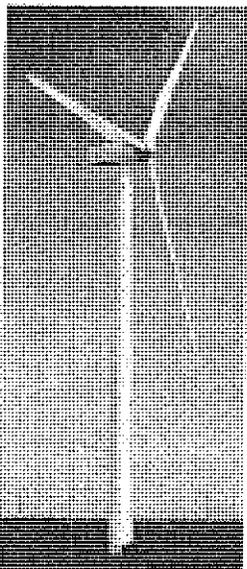
**1**

## **Make energy choices that protect the Great Lakes, support Michigan's agricultural economy, and create jobs**

Transitioning Michigan to clean energy will not only cut toxic pollution, it will boost our economy by creating jobs and reducing customers' bills. The state can do much more to help increase the market for Michigan-made clean energy products, electric vehicles and advanced batteries. The longer Michigan waits to strengthen the state's clean energy laws, the farther behind we will fall compared to neighboring states with more proactive policies.

### **INCREASE THE STATE'S CLEAN ENERGY AND ENERGY OPTIMIZATION STANDARDS**

Polls show that voters overwhelmingly support increasing the state's clean energy standard, though they were swayed by the argument to block all proposed constitutional amendments on the ballot in November 2012. What's more, Governor Snyder has announced a series of energy forums in 2013 to discuss improvements to Michigan's clean energy law, Public Act 295 of 2008. Therefore, Clean Water Action will work with legislative leaders and the Administration to move Michigan quickly toward a clean, renewable energy future.



Michigan is falling behind other states when it comes to implementing clean, renewable energy. Health studies repeatedly show that coal fired power plants are a major cause of harmful pollution that causes illness like cancer, heart attack and asthma which causes billions of dollars in health care costs. Mercury from coal plant pollution has made Michigan's fish unsafe to eat.

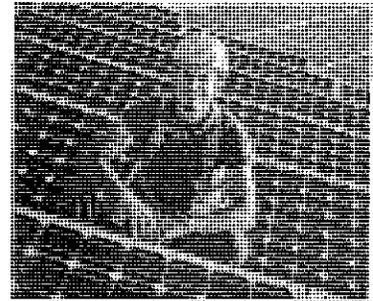
Unseasonably warm temperatures in the spring and summer, followed by a harsh frost, led to the destruction of 90% of Michigan's tart cherry and apple crops and nearly half of Michigan's corn crop. Investing in renewable energy like wind and solar power will reduce the number of dirty power plants emitting dangerous pollutants into the air. It will help protect Michigan agriculture from extreme weather.

Michigan must increase the state's renewable energy standard to at least 25% by 2025. In addition, the definition of renewable energy must be improved to incentivize the clean and sustainable energy options produced in the state. Also, more financial incentives could be put in place such as policies that promote distributed electricity generation and allow Michigan residents to become "clean energy providers." Existing utility programs are oversubscribed because of the great enthusiasm in our state for this idea. These distributed energy policies must provide a sound return on investment based on the value of the energy that is generated and give equal grid access to the renewable energy installations.

Clean Water Action also feels it's clear that more must be done to build upon another one of the state's great successes, Michigan's Energy Optimization standard. The current standard requires that utilities save 1% of their energy per year for electricity and .75% for natural gas. This policy saves Michigan customers millions of dollars on monthly utility bills, makes homes more valuable, and builds jobs in our communities.

But Michigan lawmakers can do much more to increase the most cost-effective source of power, energy efficiency. Increasing the energy efficiency standard to 2% per year would ramp up benefits

to energy customers while expanding opportunities to grow employment in this burgeoning industry. Moreover, Michigan's Energy Optimization standard already provides credits for companies that capture wasted heat. By increasing our state's standard, we'll create even more reasons for industries to locate here.



Other changes are needed to our efficiency standard in order to maximize the benefits to our state, such as removing the current law's spending cap that artificially limits investments in the least-costly source of power. It is very dangerous for the state's economy to limit energy efficiency investments when the law in our neighbor state, Illinois, keeps energy costs low by requiring that all reasonably priced efficiency measures must be exhausted before allowing utilities to build other, new sources of energy. That's why utility energy decision-making should be overseen by the Michigan Public Service Commission through an Integrated Resource Planning process where long-term energy choice costs and benefits are weighed through a formal and transparent oversight process.

Last year Clean Water Action worked with our labor partners on legislation that will help put Michigan's working families back on the job. Passing critical "Green to Gold" legislation will create a state revolving loan fund for green tech start-up projects. These funds will be leveraged to create thousands of new clean energy jobs that cannot be outsourced.

Clean Water Action will work with the Michigan Legislature to:

- Pass legislation to improve Michigan's renewable energy standard by:
  - increasing the standard to at least 25% renewable energy by 2025;
  - ensuring government clean energy incentives of their own design meet both the standard and things made in our state are maximized; and
  - expanding incentives for Michigan residents to become their own energy producers.
- Pass legislation to improve Michigan's energy efficiency standard by:
  - increasing the standard to at least 2%;
  - removing the spending cap on energy efficiency;
  - increasing funding programs by creating job-secure grant programs; and
  - becoming the first state to set a net-zero standard.
- Pass legislation to put in place a state revolving fund for green energy investments.

## PROMOTE THE USE OF ELECTRIC VEHICLES

Michigan is ready to rev our economy's engine while lowering harmful pollution by transitioning away from the use of fossil fuels. One of the ways our state can do that is by embracing lower carbon fuel sources such as electric vehicles (EVs). Michigan has a lot invested in EVs and the batteries that power them and the legislature can greatly help these companies by passing incentives that strengthen the market for their innovative products.



Clean Water Action will work with the following legislative to:

- Pass legislation that creates an account for the water quality testing regulatory model to comply with the state water quality standards.
- Pass legislation that requires state agencies to undertake a study of the water needs of water consumers in order to deal with the extraction of water using fracking.
- Pass legislation that creates a permit system for deep water ports that require full state of Michigan compliance and regulation. It should also include provisions for improved enforcement.
- Pass legislation that creates a rule that prohibits the use of publicly owned water supplies for water impoundment and regulation. It should also include provisions for improved enforcement.
- Pass legislation that requires full state and disclosure of the health risks and of ongoing operations in deep water ports and requires compliance with the state water quality standards.

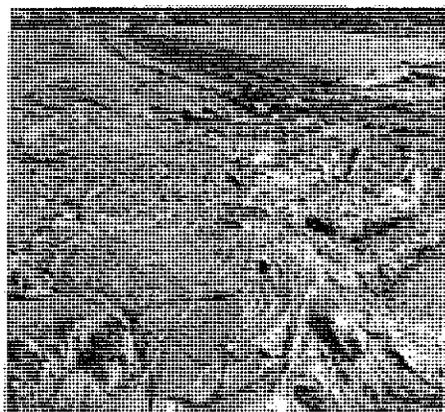
## 2 Improve people's health

Toxic pollution can completely surround us on a daily basis — from the dust in our homes, to the personal care products we use on our skin, to contaminated sites leaking chemicals into our groundwater aquifers. Our national chemical policies do not adequately protect us from the dangers posed by many harmful contaminants. Therefore, Clean Water Action has outlined several ways for the state to bridge that gap and increase protections to better the health of Michigan's people and our environment.

### **KEEP CONTAMINANTS LIKE COAL ASH OUT OF DRINKING AND SURFACE WATER**

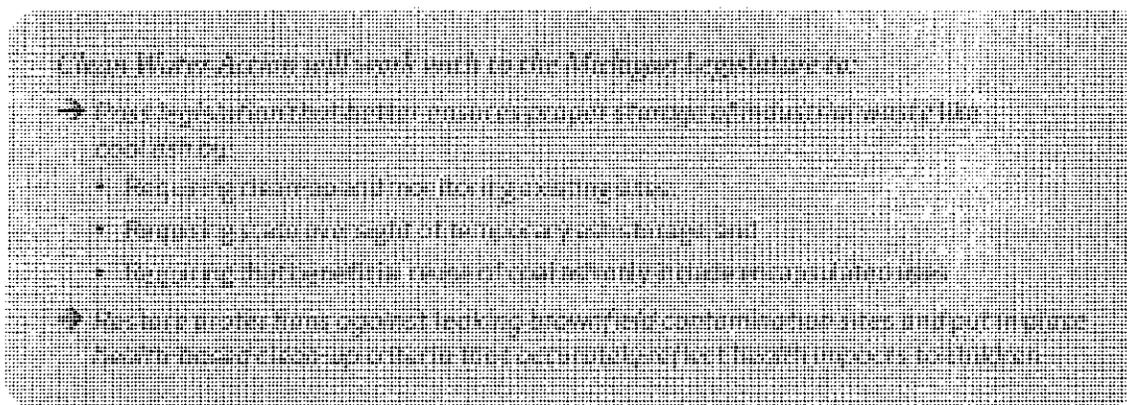
Since the 1970's Michigan has worked to prioritize keeping waste from leaking from landfills by requiring liners, leachate collection, and water quality testing for new solid waste disposal areas. However, many of the landfills that store industrial waste like coal ash were grandfathered-in without requirements for proper liners or other safeguards. Additionally, unregulated "temporary storage" of coal ash is allowed on-site at coal-fired power plants, though that can be done in the same type of surface impoundment that ruptured in Tennessee in 2008 spilling over a billion gallons of pollutants across land and water. These coal ash landfills and impoundments currently pose a hazard by leaking dangerous contaminants like arsenic, lead, and mercury into our ground and surface waters and a catastrophic coal ash spill in Michigan is a real possibility.

The EPA is currently stalled in writing rules to address the storage of coal ash, and because of pressure from members of Congress who've sided with big coal mining companies and their lobbyists, it's not certain whether or not these leaking existing legacy coal ash sites will be covered by the new federal rules. Michigan can take the lead on this issue and pass legislation that will require better clean-up and ongoing monitoring of leaking existing licensed storage sites. Moreover, temporary ash storage must be regulated to ensure the ash is not leaking from the area nor is in danger of rupturing.



In order to reduce storage problems, coal ash and other industrial waste can be recycled, but Clean Water Action will work to strengthen the law around ash reuse to ensure that only bonded, or encapsulated uses are allowed versus loose ash disposal like road or construction fill.

Another way that Michigan should work to increase protections against contaminants leaking into our surface and ground water is to strengthen state oversight of brownfield sites and put in place standards that are more protective for human health, especially for children. In the last legislative session, brownfield protections were greatly weakened and it is a priority for Clean Water Action to not only regain lost safeguards but to put in place protections that more accurately reflect the risk of exposure to our most vulnerable Michigan residents, our youth.



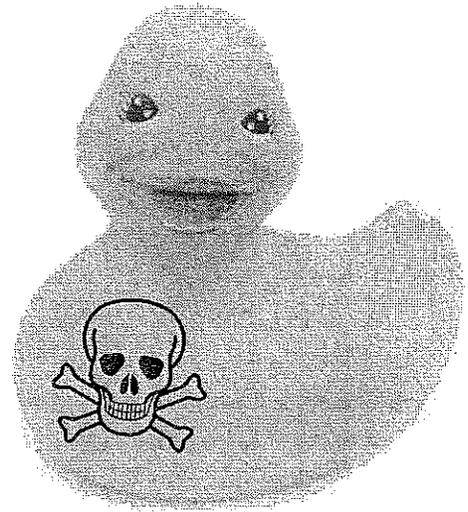
## PROTECT CHILDREN FROM TOXIC CHEMICALS

All chemicals in our products eventually get into our water, and unfortunately the chemicals found in many consumer products are considered toxic. This is because the nation's chemical policy is broken and it allows products to enter our market that have not been proven safe. Of the 62,000 chemicals that were grandfathered-in under the leading federal chemical law, the Toxic Substances Control Act (TSCA), only around 200 of them have been tested for human safety. But more and more research that has been done shows chemicals like bisphenol A (BPA), phthalates, and polybrominated diphenyl ethers (PBDEs) cause harmful health impacts like cancer and neurological and developmental delay and they bioaccumulate in aquatic organisms. Yet they are found in everyday products, including those used by children and infants, the most vulnerable in our society. Also, the lack of testing for dangerous chemicals before products enter the market has led to innumerable cases of proven health damages and caused expensive product recalls.

As the federal government continues to debate the national Safe Chemicals Act and other TSCA reform, Michigan lawmakers can help bridge the gap and improve the safety of the products sold

in our state, especially those that will be used by children. They are most affected by chemicals because of their small size, developing bodies, and exposure to dust and other contaminants by discovering items by using their mouths. Therefore, right-to-know legislation should be reintroduced in the 2013 session to give parents tools to determine when the chemicals of highest concern are being used in children's products.

In addition, the use of specific known toxic chemicals must begin to be phased-out in Michigan. For example, the pesticide Lindane is still used over-the-counter to treat head lice though it has been banned for use in the military and on pets. It is essential that Lindane is only applied to kids' heads under the supervision of doctors as it can cause seizures and other serious neurological impacts. What's more, toxic flame retardants like polybrominated diphenyl ethers (PBDEs) are still present in furniture, carpets and other household products though there are many safer flame retardants. Some forms of PBDEs have already been banned, but others, like deca-BDE must still be phased-out by the Michigan government. And, the safer alternatives to these dangerous chemicals can be made right here in Michigan in our growing "green chemistry" industry.



Clean Water Action will work with the Michigan Legislature to:

- Pass the Safe Children's Products Act giving parents the right to know when chemicals of concern are in toys and other children's products.
- Pass legislation restricting the use of Lindane when not used in the presence of a doctor.
- Pass legislation phasing out the use of the toxic flame retardant deca-BDE.

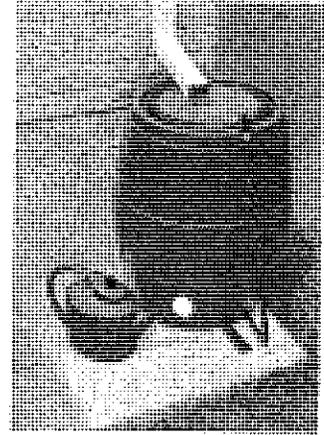
### 3 Ensure clean beaches and safe drinking water

Clean, fresh drinking water is essential to life and swimmable beaches are a cornerstone of Michigan's recreational and tourism opportunities. The 2013 Michigan Water Protection Agenda outlines several simple policies that will provide a "win-win" for improving the health of Michigan's water and economy.

#### FIX SEWER AND STORMWATER SYSTEMS

In 2011, over 62 billion gallons of raw or partially-treated sewage was released into Michigan's waterways. This is because during large rain events, outdated sewer and stormwater systems cannot hold the large volume of water and waste present in the pipes and it triggers Combined Sewer Overflows (CSOs).

The solution to too much stormwater is found in green infrastructure like permeable pavement and parking surfaces, rain gardens and rain barrels, berms, and other engineering solutions that help capture rain water where it falls. Creating jobs, beauty, and value for communities, more and more local areas are investing in green infrastructure. And, homeowners are realizing the benefits of rain collection systems for gardening and yard maintenance in addition to reducing the risk of flooding. Clean Water Action is working with local groups in Macomb County and elsewhere to educate the public about the many advantages of green infrastructure but much more needs to be done.



Similar to the power to tax under the drain code, local areas need a mechanism to garner funds for stormwater management projects. Therefore, the state's lawmakers must take action in 2013 to ensure that communities have the resources they need to invest in green infrastructure by enabling the creation of local stormwater utilities.

Clean Water Action will work with the Michigan Legislature to:  
→ Pass a law that gives local governments the power to create stormwater utilities.

### STOP LEAKING SEPTIC SYSTEMS

Over 30% of Michigan families use septic systems to manage liquid waste rather than a municipal sewer system. This adds up to over 1.2 million septic systems in use. Yet, extensive research has shown that a large number of Michigan septic systems are failing right now, for example in Kent County alone it is estimated that one million gallons of sewage leaks daily from septic systems.

Sewage leaking from septic systems frequently contaminates drinking water wells with bacteria, viruses, and toxic chemicals, causing illness and chronic health impacts. Even when properly maintained, septic systems can release pollutants into our water, such as phosphorus that causes algae like the huge bloom in Lake Erie.

Because of the likelihood for harmful pollution to leak from septic systems, all other states except Michigan have put in place a Statewide Sanitary Code. These codes typically require inspection of septic systems in order to find and fix potential problems like tank cracks or leaking pipes. Though it was a priority of the last Governor, Michigan has seen no recent statewide efforts to address this pervasive problem though some counties like Kent and Bay counties have put in place local policies to begin to address the need for regular septic system inspections.

Clean Water Action will work with the Michigan Legislature to:  
→ Pass a statewide sanitary code that requires regular inspections of septic systems.

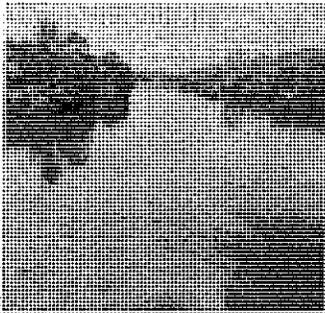
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## Retain abundant habitat for fish and aquatic wildlife

The health of Michigan's water is directly tied to the health of the many fish and aquatic species that thrive in the state's wetlands and coastal areas. In addition, Michigan's tourism, hunting, and fishing industries rely on healthy species. That means that spawning and nesting grounds and other critical habitat must be protected.

### PROTECT MICHIGAN'S REMAINING WETLANDS

In addition to creating habitat for aquatic species, wetlands protect against flooding, filter pollution out of water, and add valuable nutrients to the environment. Clean Water Action had the opportunity to represent statewide environmental groups on the legislatively-created Wetlands Advisory Council.



Over time, Michigan lost over 50% of our wetlands, over 5 million acres. It's absolutely imperative that we protect what's left of this important natural resource or we will see less habitat, more flooding, and more dangerous pollution in our water.

Michigan is one of only two states that have been delegated the authority to regulate our wetlands under the Clean Water Act. This is especially important because damaging U.S. Supreme Court decisions have had the outcome of requiring the federal U.S. Army Corps of Engineers to do costly and lengthy jurisdictional determinations regarding when wetlands regulations apply, which is inconvenient for businesses.

But, a U.S. Environmental Protection Agency (EPA) audit of Michigan's wetlands program revealed major problems with our wetlands laws and rules that need to be fixed in order for us to keep the authority to regulate our wetlands versus giving that power up to the federal government. Loss of our wetlands protection would not only mean confusion for property owners but would also leave millions of acres of our wetlands habitat imperiled because of unknown federal jurisdictional limits. The Wetlands Advisory Council (WAC) was tasked with addressing the issues outlined by the EPA as well as identifying a long-term source of funding for the state's program. Working closely with the Michigan Department of Environmental Quality (DEQ), WAC's diverse stakeholders crafted recommendations that were drafted into legislation.

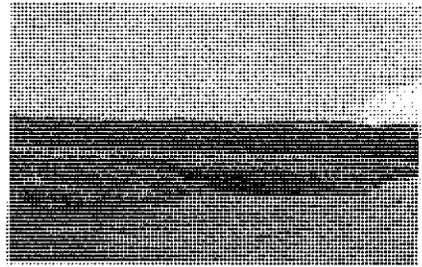
Unfortunately, in late 2012, a special interest attempted to get preferential language included in the proposed bill that violates the federal Clean Water Act and would have caused EPA to revoke Michigan's wetlands authority. Thankfully DEQ and the other WAC members were able to stop the legislation from moving with the harmful language but that stalled the progress of the legislation. In 2013, it will be imperative for the legislature to pass a DEQ- and WAC-approved bill that corrects the other problems that currently exist with Michigan's wetlands regulations.

Clean Water Action will work with the Michigan Legislature to  
→ Preserve Michigan's habitat by supporting the DEQ and the Wetlands Advisory Council

## RESTORE SAFEGUARDS FOR COASTAL HABITATS

In 2012, the Michigan Legislature passed bills that greatly impacted species habitat such as cutting protections for critical dunes and the Senate passed a bill removing requirements for biodiversity in forests. These were very harmful changes and must be addressed, but most central to Clean Water Action's mission was legislation passed in 2012 that greatly limited protections for coastal habitats.

The legislature passed bills that allow unregulated "beach grooming" while expanding the definition of grooming to include removal of vegetation which can greatly increase the spread of invasive species like phragmites. Michigan must act quickly to restore rules that limit unchecked human activities on the water's shore, to ensure we do not forever ruin our invaluable fish spawning grounds, habitat for small crustaceans and other creatures essential to the food chain, or increase the spread of harmful invasive plant species.



## 5 Stand up for "Pure Michigan"

Michigan spends tens of millions of dollars every year promoting the promise of a "Pure Michigan" to lure tourists to our fair state. However, without a state government that backs-up that promise, the slogan is nothing but empty words.

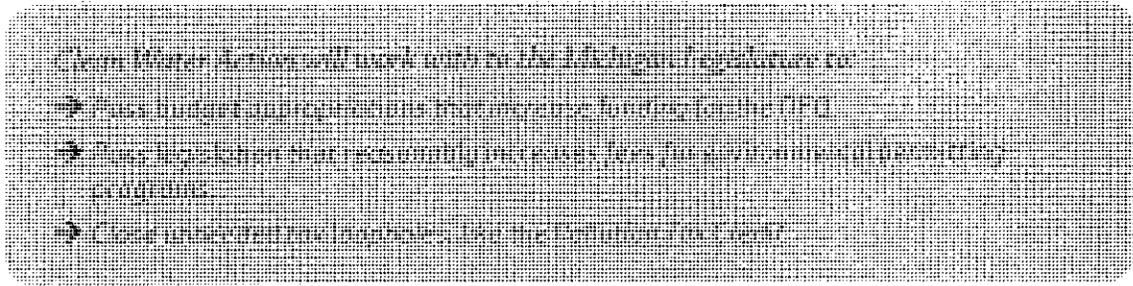
### ENSURE ADEQUATE FUNDING FOR ENVIRONMENTAL PROGRAMS

*like the MDEQ*

For decades, the funding of the Michigan Department of Environmental Quality has been slashed resulting in required staff reductions and added job duties to remaining staff, thus leaving many corporate polluters unguarded. Luckily, in the past budget cycle this funding drain was held off and it's essential that the legislature make no further cuts. However, it's also important for lost monies to be replaced in the DEQ's budget so that essential environmental programs can again be fully staffed.

Beyond ensuring general fund support for the DEQ's budget, fees for programs have not kept up with the times and the regulated community is not paying their fair share for the value of the permitting programs that they make use of. For example, the Wetland Advisory Council's recommendations suggested studying a reasonable expansion of the permitting fees for the state wetlands program since the current fee structure only covers 15% of the cost of the program.

In addition to increasing fees for programs, Michigan can also close unneeded tax loopholes that are draining the state's resources. For example, the Pollution Tax Credit gives away over \$55 million dollars every year to corporate polluters that are just meeting the bare minimum of environmental requirements versus giving an incentive to only those companies who have truly embraced "green" practices by far exceeding environmental regulations.

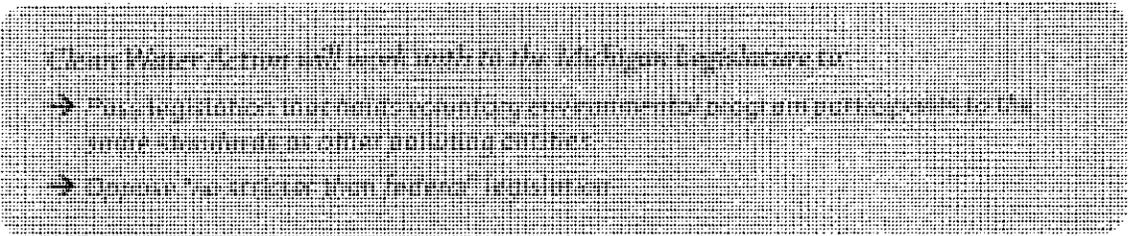


## STRENGTHEN AND ENFORCE ENVIRONMENTAL SAFEGUARDS

Michigan lawmakers can ensure our state lives up to the promise of “Pure Michigan” by ensuring the state’s environmental laws actually have teeth and that there are enough natural resource protection “cops on the beat” enforcing our hard-won environmental safeguards.

Voluntary programs like the Michigan Agricultural Environmental Assurance Program (MAEAP) and “Environmental Leaders” are not a substitute for enforcement of rules and regulations, including unannounced inspections and requiring strict adherence to water quality and other pollution standards. Clean Water Action will work to ensure this important function of the DEQ is not overlooked.

Additionally, Clean Water Action will continue to ensure Michigan state agencies retain the power to write rules and regulations that are stronger than those of the federal government. Our government must be able to act quickly to put in place regulations that protect our water, such as when Governor Milliken enacted regulations in the 1970s to reduce harmful phosphorus in the Great Lakes. In early 2011 Governor Snyder used his first veto to strike down a “no stricter than federal” bill to ensure his office kept the power necessary to protect our water. The Michigan Legislature must not try again to limit the state’s power in such a way. The essence of the “Pure Michigan” promise is an oath to keep our unique and beautiful state protected not only for our out-of-state visitors but also for future generations of Michiganders.



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*For more information on Clean Water Action’s 2013 Michigan Water Protection Agenda  
or for additional resources on these or other issues, please contact:*

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Susan Harley, Michigan Policy Director  
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### CLEAN WATER ACTION MICHIGAN

1200 Michigan Ave., Suite C, East Lansing, MI 48823 | Phone 517.203.0754 | [www.cleanwateraction.org/mi](http://www.cleanwateraction.org/mi)

There is no "Clean" Coal.

HANNAH NEWMAN AT Gov. Ajd Snyder's Detroit Energy Forum 3.28.2013

 CLEAN WATER FUND | CLEAN WATER ACTION

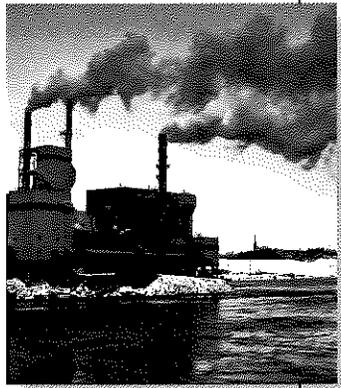
Carbon Capture for coal-fired electrical generation plants is too expensive and dangerous as well!

# CARBON CAPTURE AND GEOLOGIC STORAGE

## Risks to Public Health and Water Resources

### CARBON CAPTURE AND STORAGE OVERVIEW

The coal industry is betting its future on carbon capture and storage (CCS). They are working to convince policy-makers that they can reduce coal's contribution to global warming pollution and continue to burn coal. The industry is seeking huge subsidies they claim will enable power plants to capture and store carbon dioxide (CO2). CCS refers to technologies that could theoretically allow power plants and other industrial sources to avoid releasing carbon dioxide into the atmosphere and to permanently store it. Currently, storage in geologic formations underground, such as saline aquifers, are the most common proposals. Much is still unknown about this technology, and it is only now being tested at a commercial scale.

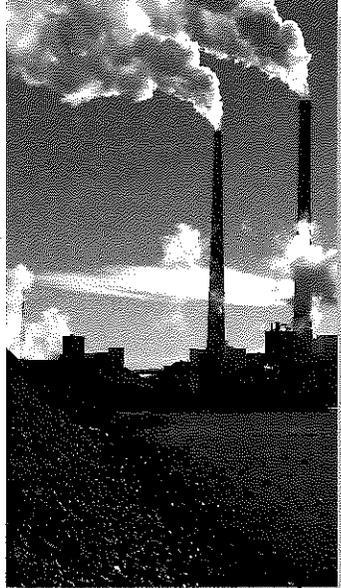


### CARBON CAPTURE OVERVIEW

The separation of carbon dioxide and compression for transport is expected to consume large amounts of energy and water. The 2005 Intergovernmental Panel on Climate Change's *Special Report: Carbon Dioxide Capture and Storage*<sup>1</sup> estimated that for a new high-efficiency pulverized coal plant, capturing CO2 would reduce plant efficiency between 24 and 40 percent, or 14 to 25 percent for a gasification-type coal plant. This means that to make up for energy used for capturing CO2, a plant would need to burn 14 to 40 percent more coal. Burning more coal would increase air pollution and solid waste residue from the additional combustion. Mining and transporting more coal would add to those increased environmental impacts.

### Carbon Capture: Public Health and Water Resources — Possible Impacts<sup>2</sup>

- **Air and water pollution:** Increased nitrogen and ammonia emissions would make water pollution worse. Nitrogen oxide pollution increases health-harming ozone smog.
- **Coal ash disposal:** Pulverized coal plants would increase coal ash needing disposal by 24 percent; gasification plants would increase ash disposal by 14 percent. Coal ash needs to be carefully stored and prevented from contaminating waterways as happened in the 2008 Tennessee Valley Authority coal ash disaster.
- **Demands on water resources:** Carbon capture would greatly increase water use at power plants at a time when climate change is already reducing the amount of water available in many places. For a pulverized coal plant, water usage would be more than double the use by conventional plants. For a gasification coal plant, water usage would rise 14 percent. Alternative "dry cooling" technologies consume less water, but would use more energy, in turn increasing ash, nitrogen and coal mining-related air and water pollution.





Union of  
Concerned  
Scientists

## BURNING COAL, BURNING CASH

# Michigan's Dependence on Imported Coal



*With Renewable Energy we would keep these Billions of \$\$\$s in Michigan!*

*Submitted by Henry Newman at Gov. Rick Snyder's Detroit Energy Forum 3-25-2013*

The cost of importing coal is a major drain on the economies of many states that rely heavily on coal-fired power. Thirty-eight states were net importers of coal in 2008, from other states and, increasingly, other nations. *Burning Coal, Burning Cash* ranks the states that are the most dependent on imported coal. This fact sheet shows the scale of this annual drain on Michigan ratepayers, and discusses ways to keep more of that money in-state through investments in energy efficiency and homegrown renewable energy.

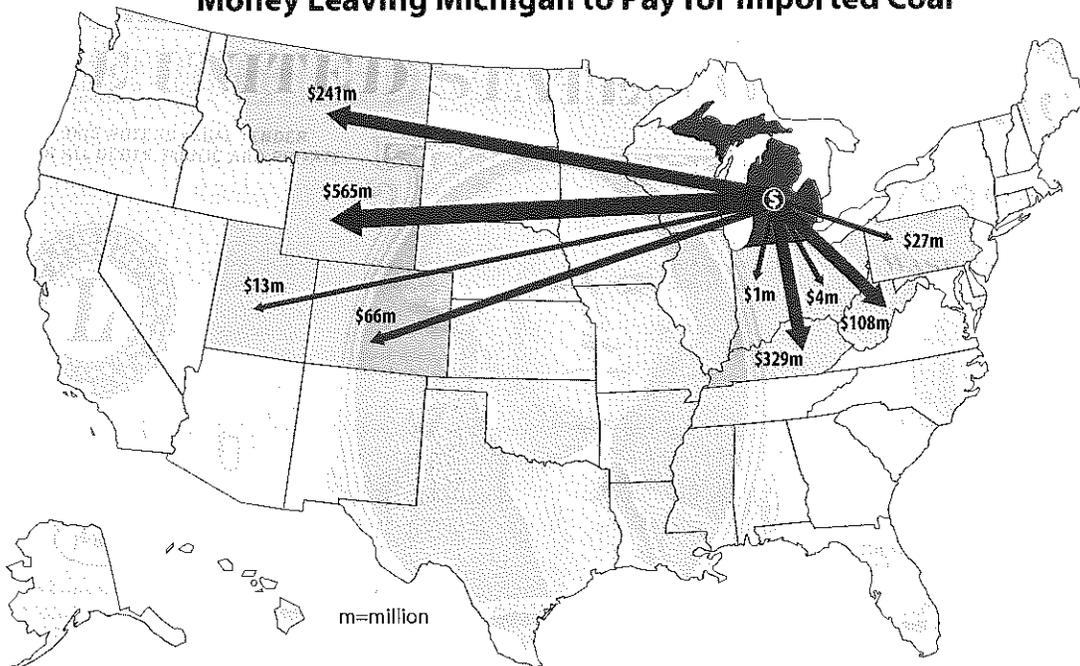
Michigan imported all the coal its power plants burned in 2008—mainly from Wyoming, Kentucky, and Montana. To pay for those imports, Michigan sent **\$1.36 billion** out of state.

Detroit Edison, a subsidiary of DTE Energy and the state's largest provider of electricity services, purchased \$781 million in coal imports—more than half the state's total, and more than any other Michigan power producer. The utility's Monroe facility, near the city of Monroe, is the most import-dependent power facility in Michigan, having spent \$379 million in 2008. The plant is also the seventh-largest source of carbon dioxide emissions (the main cause of global warming) among hundreds of coal plants nationwide.



**Detroit, Michigan.** The cost of importing coal is a drain on Michigan's economy, which relies heavily on coal-fired power. Investments in energy efficiency and homegrown renewable energy can help stimulate the economy by redirecting funds into local economic development—funds that would otherwise leave the state.

### Money Leaving Michigan to Pay for Imported Coal



#### Compared with other states, Michigan:

- Imported the 5th most in net weight: 36 million tons
- Spent the 7th most on net imports: \$1.36 billion
- Is the 9th most dependent on net imports as a share of total power use: 60 percent

Note: Not all these funds will necessarily land in the state or nation where the mining occurs. Mine owners may divert the profits to parent companies in other locations, for example. Amounts also include the cost of transportation.

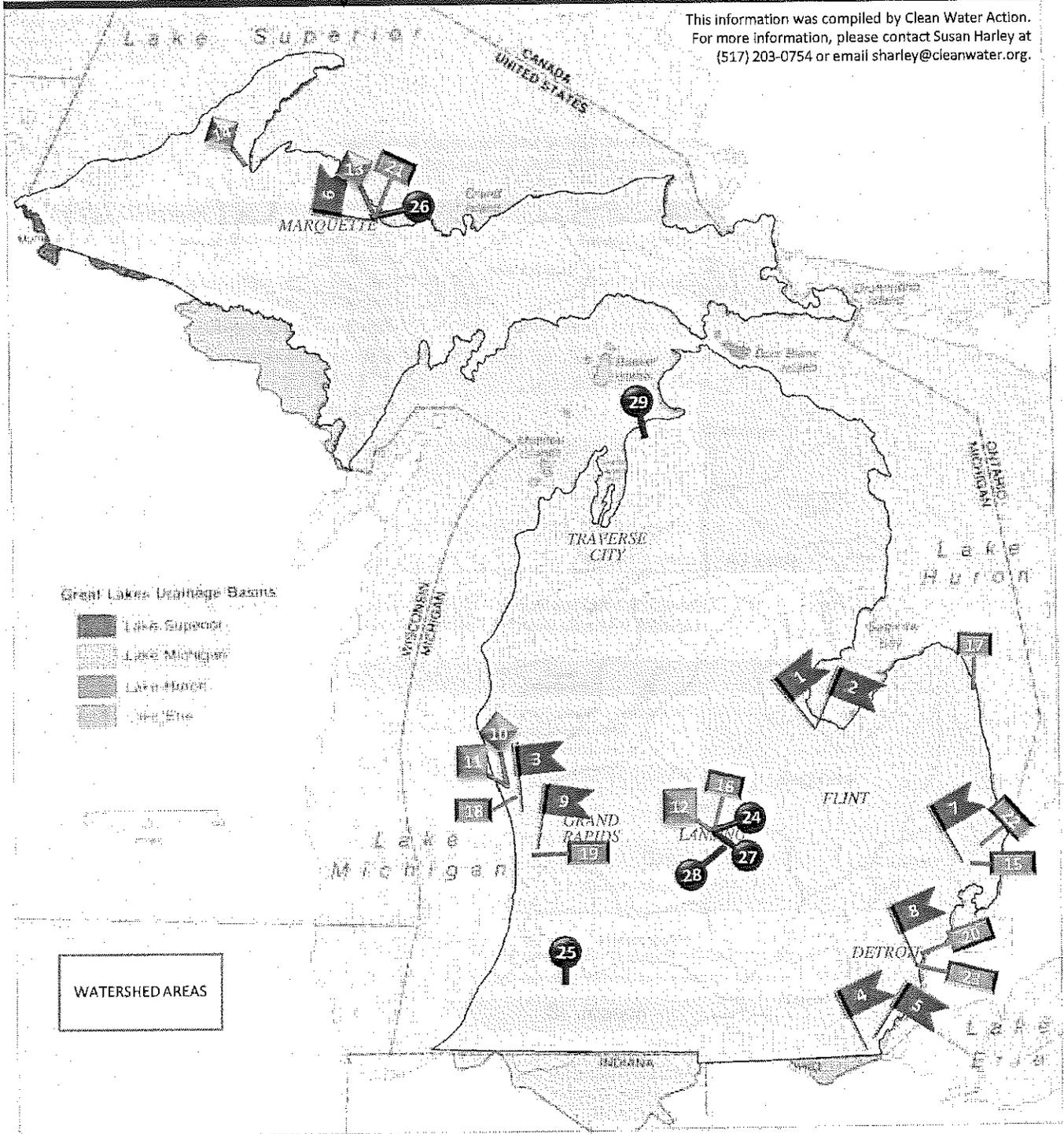


**CLEAN ENERGY NOW**  
PROTECTING MICHIGAN'S FUTURE

Submitted By *Henry Newman* At Gov. Rick Snyder's Request  
Energy Facility of 3-25-2013; I am a school board  
Trustee of *Cl. School*

# COAL ASH STORAGE SITES

This information was compiled by Clean Water Action.  
For more information, please contact Susan Harley at  
(517) 203-0754 or email [sharley@cleanwater.org](mailto:sharley@cleanwater.org).



**Open Licensed Type III Low Hazardous Industrial Landfills Primarily Used for Coal Ash Disposal**



**Closed Licensed Type III Low Hazardous Industrial Landfills Primarily Used for Coal Ash Disposal**



**Unregulated Temporary Storage Ponds (Primary and Non-Primary Coal Ash)**



**Known Coal Ash Part 201 Contamination Sites (Brownfields)**



## Coal Ash Pollution in Michigan: Big Coal's Dirty, Not So Little Secret

### What is coal ash?

Coal ash is the common term for fly ash, coal combustion waste, Flue Gas Desulphurization<sup>1</sup> (FGD) and coal combustion residues -- but they are all the same thing-- the waste byproduct left over after coal is burned to generate electricity. This waste contains numerous toxic substances, including arsenic, mercury and lead, which can leak from disposal sites and pollute the environment. Dry coal ash can blow away as "fugitive dust" and wet coal ash can percolate through soil and pollute drinking water. Coal ash also can mix with stormwater and drain directly into our "Pure Michigan" waterways.

### What problems are caused by coal ash?

The toxic substances commonly found in coal ash are known to pollute water and air and pose public health risks. For example, a person who drinks water polluted with arsenic has a cancer rate as high as one in fifty.<sup>2</sup> Lead, mercury, and other heavy metals in coal ash may cause developmental disabilities in fetuses and children.<sup>3</sup> Coal ash can harm wildlife, too. Selenium, another element commonly found in coal ash, can cause mutations in fish.<sup>4</sup>

Since it is hazardous, coal ash should be managed to prevent water and air pollution and to protect public health. However, in practice, coal ash is less regulated than household trash. That's what prompted the Environmental Protection Agency (EPA) to propose long overdue rules for the disposal of dangerous coal ash. Nearly 450,000 people submitted comments in support of EPA's proposal, but over two years later, a rule has yet to be finalized and is also under attack by some members of Congress.

### How is coal ash handled in Michigan?

Since small plants are exempt from national reporting requirements, the exact amount of coal ash produced annually in Michigan is unclear. However, we do know that over 1.7 million tons of ash is created every year by the 14 largest coal-fired power plants Michigan<sup>5</sup>.

Michigan's coal ash is both temporarily and permanently stored in dry landfills or wet storage ponds, most of which are unlined. The permanent storage facilities are called "Type III Low Hazardous Industrial Landfills" and are licensed under the state's solid waste program. However, many of these permanent storage sites were "grandfathered-in" so that the state's requirements for solid waste landfills don't apply and they have no liners or water collection and testing systems needed to ensure the toxic coal ash does not pollute our environment. "Temporary" storage areas are typically ponds and are unregulated by the state, unless dam safety requirements apply. There are at least 46 open primary and non-primary ash storage ponds and 13 landfills at 23 different coal ash storage sites in Michigan. There are also at least 3 retired ash ponds and 4 retired landfills at 5 sites that are otherwise open. Another 4 Type III landfills are located at sites that have been totally closed by the state. But, the remaining open facilities continue to add more toxic coal ash every year.

<sup>1</sup> Flue Gas Desulfurization (FGD) is the process that is used to remove, or scrub, sulfur dioxide from power plant smokestack emissions.

<sup>2</sup> U.S. EPA. *Hazardous and Solid Waste Management System; Identification and Listing of Special Waste; Disposal of Coal Combustion Residuals from Electric Utilities*. Proposed Rule, June 21, 2010. *Federal Register*, Vol. 75, No. 118, page 35145.

<sup>3</sup> ATSDR ToxFAQs. Available at: <http://www.atsdr.cdc.gov/toxfaqs/index.asp>

<sup>4</sup> Proposed Rule, at 35171.

<sup>5</sup> Data compiled from Energy Information Administration, "Power Plant Operations Report," (Form EIA-923), October 25, 2011.



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MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

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If you wish to speak today, please complete the following:

Name: Milan Stevanovich (DID NOT SPEAK)  
Affiliation (if any): DETROIT GREEN SECTOR SKILLS  
Phone: 248-719-9100  
Email: Milanstevanovich@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): ADVANCED ENERGY DISTRICTS

Requested time to speak:  < 5 minutes     5 minutes

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If you wish to speak today, please complete the following:

Name: Thomas Renke

Affiliation (if any): \_\_\_\_\_

Phone: 517-256-2322

Email: tom@thomasrenke.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: Loch McCabe  
Affiliation (if any): President, Shepherd Advisors  
Phone: 734-975-0333  
Email: loch@shepherdadvisors.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: Jacobs Corvidae  
Affiliation (if any): WARM Training Center  
Phone: 313-894-1030  
Email: jacobs@warmtraining.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes  5 minutes

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If you wish to speak today, please complete the following:

Name: Douglas Myers Jr. G-Style  
Affiliation (if any): Sierra Club / Feed Da Streetz  
Phone: 313-624-5847  
Email: Feed Da Streetz tour@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

Requested time to speak:  < 5 minutes     5 minutes

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If you wish to speak today, please complete the following:

Name: JANE SCARLETT

Affiliation (if any): WAYNE METROPOLITAN COMMUNITY ACTION AGENCY

Phone: 734 384 6999 x224

Email: jscalett@waynemetco.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Energy Future and Affordability

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PUBLIC COMMENTS FOR INFORMING MICHIGAN'S ENERGY FUTURE  
MONDAY, MARCH 25, 2013  
NEXTENERGY  
461 BORROUGHS STREET  
DETROIT MICHIGAN  
WAYNE METROPOLITAN COMMUNITY ACTION AGENCY

I would like to start by thanking Governor Rick Snyder, Michigan Public Service Commission Chair John Quackenbush and Michigan Energy Office Director Steve Bakkal for giving the public the opportunity to provide input regarding Michigan's Energy Future. I will be reading directly from my prepared text out of respect for the requested parameters of the comment.

My name is Jane Scarlett and I am the Director of Homeless Programs at Wayne Metropolitan Community Action Agency, the Community Action Agency that has served the 42 communities that comprise Out Wayne County for the past 40 years. Last week Governor Snyder appointed Wayne Metro the interim Community Action Agency for the City of Detroit. In this role Wayne Metro will administer emergency services including utility and rent assistance along with Weatherization services. I also serve as facilitator and chair of the Out-Wayne County Homeless Services Coalition. The Coalition is a formal and informal network of over 30 service providers that administer programs to serve the homeless and those at-risk of homelessness. Coalition members design and implement programs with the goal of providing vertically and horizontally integrated services in a seamless manner to prevent and resolve homelessness.

I appreciate the statistics that have been cited by those who have already provided comment or will subsequently do so during this forum. The goal of my statement is to bridge Governor Snyder's charge for the use of relentless positive action to continue the reinvention of Michigan with the needs of those citizens who find themselves at a challenging place on the economic spectrum.

The decisions we make regarding Michigan's energy future will have a direct impact and vice-versa on the dashboard items the Governor referred to in his 2013 SOS address: the economy, agriculture, tourism (Pure Michigan!), income levels and the home market. In his SOS address, the Governor referred to his special message on energy and to paraphrase the Governor, he said that the state must have goals for energy efficiency and renewables as he believes in both concepts.

The cost and test of energy efficiency and the development of innovative sources of energy and the delivery of energy to the consumer must not only be measured in environmental terms or how "green" we have become. The analysis of cost, from source to end-user, must include a rational and careful review of programs that enable those with fixed incomes or live with other economic challenges, to benefit from this relentless positive action on the energy front. Weatherization programs that include but are not limited to replacing windows and doors, installing high-efficiency HVAC units and insulating homes must be funded so that the gains made by innovation at the source of energy are not lost by the end-user who does not live in an energy-efficient structure.

Furthermore, a metric that must be included when evaluating Michigan's energy future, is the cost to the end-user in actual dollars and cents relative to their monthly income. As the Director of Homeless Programs I have seen many individuals and families who have become homeless or are at-risk of homelessness on a monthly basis due to the cost of energy be it gas or electric. The U. S. Department of Housing and Urban Development believes that housing is affordable when an individual or family pays no more than 30% of their adjusted gross income towards rent and utilities combined. I recently asked a colleague to conduct an unscientific study of the percentage of income paid for housing (rent and utilities) on a monthly basis for 24 households who came to us for assistance. The average spent was 75% of monthly income with a range of 33% to 206%. While you might be quickly calculating what percentage of your income you pay for housing-related costs and find it is greater than 30%, I respectfully request that you consider the plight of a low-income family who must choose between heat, lights, rent, food or medication. In the community of Hamtramck, 50% of children live below the poverty level and the average annual income is less than \$10,000 per year. It is hard to imagine how the 22,423 residents of Hamtramck will fit into Michigan's Energy future if policies aren't being created with them in mind.

In closing, I would like to suggest that Governor Snyder and anyone interested in the future of the energy industry read *The Third Industrial Revolution: How Lateral Power is Transforming Energy, the Economy, and the World* by Jeremy Rifkin. Mr. Rifkin describes how Internet technology and renewable energy are merging to create a powerful "Third Industrial Revolution." Where better to start the revolution than right here in Michigan? Michigan's Energy Future must include not only 21<sup>st</sup> century sources of energy and delivery systems. Michigan's Energy Future must include affordable energy for all and consistent, well-funded rational assistance so that every citizen benefits from this new world.

Thank you for affording me the opportunity to provide this testimony.

Respectfully Submitted by Jane Scarlett.



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If you wish to speak today, please complete the following:

Name: Gayle Bettega  
Affiliation (if any): Sierra Club  
Phone: (248) 596-2118  
Email: gayle.bettega@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): electric rates in the U.S.

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If you wish to speak today, please complete the following:

Name: Nancy Witter  
Affiliation (if any): \_\_\_\_\_  
Phone: 734-904-3461  
Email: nancywitter@yahoo.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): numbers on escalation of global warming

Requested time to speak:  < 5 minutes     5 minutes

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If you wish to speak today, please complete the following:

Name: David E. Nixon

Affiliation (if any): Monroe County Comm College

Phone: 734-384-4166

Email: dnixon@monroecollege.edu

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Energy Policies

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Presented  
3/25/13

**Comments of Dr. David Nixon  
President  
Monroe County Community College  
March 25, 2013**

Good afternoon. My name is David Nixon and I am president of Monroe County Community College. I appreciate this opportunity to offer this perspective on Michigan's future energy policy.

From a big-picture perspective, I see great connection between Michigan's future policies affecting Michigan's energy industry, post-secondary education and jobs. And, as I tell our students, prospective students and members of our community, when it comes to our mission it's still all about jobs!

MCCC is a nationally accredited postsecondary institution. The faculty and staff work hard so that MCCC can provide a variety of higher education opportunities to enrich the lives of the residents of Monroe County. In addition, MCCC has joined the ranks of financially approved education institutions to process GI Bill benefits, including the Veterans Training Assistance Program.

According to the August 20 issue of *Time* magazine, more than 60 percent of jobs in the U.S. will require postsecondary training in the next five years. Furthermore, experts suggest that the U.S. economy will create more than 14 million new jobs over the next 10 years. Community colleges will be playing a more important role than ever in preparing young men and women for those jobs.

With a tuition rate that is among the lowest in the region, Monroe County Community College is an excellent place to acquire the skills necessary to succeed.

Additionally, a \$17-million construction project is progressing on campus as of a result of the leadership of MCCC faculty in the development of new curricula for new careers in fields such as nuclear engineering technology, alternative energy and welding. Even though the new Career Technology Center does not open until next year, those programs are currently being offered and students can enroll now.

None of this would be possible without the support and involvement of Monroe County employers. Perhaps our most exemplary partnership is the one with DTE Energy. This is one point of intersection between Monroe County Community College and an adaptable energy for Michigan's future.

Not only does my institution benefit from property taxes paid by the company, we have benefitted from the very real involvement of DTE Energy personnel in the development of a number of our significant program offerings. When a need for trained nuclear power plant technicians was identified a number of years ago, DTE Energy helped get our program going.

The partnership began even before development work on our own nuclear technician curriculum began. Lakeland Community College, near Cleveland, Ohio, had an established Nuclear Engineering Technology program. We asked to partner with them. It was an early experiment with distance learning, and it required a two-way video connection. A grant from the DTE Energy Foundation made that connection possible.

We maintained the relationship with Lakeland for 18 months as we were getting our own curriculum developed. DTE Energy personnel were involved in this effort every step of the way. They were involved, too, in the design of the new Career Technology Center that I mentioned earlier in my comments.

The Career Technology Center will allow for updating and expanding existing programs, nuclear engineering, welding, construction, computer-aided drafting and manufacturing, electronics, mechanical engineering and automation, quality assurance, and automotive engineering and service with an emphasis on hybrid and battery technology. In addition, the Career Technology Center will provide facilities and equipment necessary for the development of programs in the emerging areas of advanced manufacturing; renewable energies such as wind, solar and fuel cell technology; and sustainable and green technologies.

These programs and facilities are making it possible for Monroe County residents and other Michiganders to aspire to first or new careers and making it possible for them to stay in our County or our state, to buy homes, to raise their families right here instead of being forced to seek opportunities elsewhere.

Throughout my brief comments this afternoon, I have use terms like partnership and involvement.

This all comes full circle when I think of one of the policy changes that has been proposed ... specifically, permitting greater deregulation of Michigan's electricity industry.

Monroe County Community College has been among the institutions approached in the past by energy marketers. They have offered a discount off the regulated rate available through DTE Energy.

We at Monroe County Community College have not taken them up on their offers.

You see, we know that our future success is <sup>NOT</sup> built on low electricity prices alone.

We believe we have more to gain from partnering with one of our County's largest employers and their men and women than by a tunnel-vision pursuit of the lowest price available. We favor a policy that promotes the availability of reasonably priced electricity for all Michigan institutions, companies and families ... not just the "lucky" few.

Thank you.



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If you wish to speak today, please complete the following:

Name: Charles Mackay

Affiliation (if any): TEAM VETS

Phone: 313-804-9523

Email: CMACKAY@TEAMVETS.COM

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): TRAINING & ASSEMBLY PLANT

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If you wish to speak today, please complete the following:

Name: Jacob McGraw

Affiliation (if any): \_\_\_\_\_

Phone: 810 923-2709

Email: JakeMcG83@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Transparency + public involvement in Energy Policy

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If you wish to speak today, please complete the following:

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Email: Kae.halonen@gmail.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: GEORGE EMANOIL  
Affiliation (if any): PRESIDENT / QUESTECH, INC  
Phone: 248-615-0800  
Email: QUEST24630 @ AOL.COM

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): ALTERNATIVE ENERGY TRAINING

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If you wish to speak today, please complete the following:

Name: Dimitrios Cecil

Affiliation (if any): \_\_\_\_\_

Phone: 248-747-4700

Email: sales@KUBT.US

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): KUBT-BATTERY MFG EQUIPMENT

Requested time to speak:  < 5 minutes  5 minutes ENGINEER - PHEV CONVERSION OF HEV & PHEV

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If you wish to speak today, please complete the following:

Name: Tia Lebherz

Affiliation (if any): Food + Water Watch

Phone: 313 486 1354

Email: tlebherz@fwwatch.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Hydraulic Fracturing

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If you wish to speak today, please complete the following:

Name: John Carlos  
Affiliation (if any): GreeningDetroit.com  
Phone: 248 388-2828  
Email: Media@GreeningDetroit.com

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
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(Please specify): Out Reach & Growing of

Requested time to speak:  < 5 minutes  5 minutes

THE Green Economy

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If you wish to speak today, please complete the following:

Name: MICHAEL KUNNUJI  
Affiliation (if any): COOL TECH COMFORT  
Phone: 313 862 6662  
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Topics you wish to address today:

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- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Gas & Cable choice

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If you wish to speak today, please complete the following:

Name: William W. Aaron

Affiliation (if any): \_\_\_\_\_

Phone: (313) 345-3083

Email: AARON.ASSOC@MSU.COM

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Hydro Energy - we need to use the Great Lakes

*AS A MAIN GREEN ENERGY PROVIDER TO MICHIGAN*

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If you wish to speak today, please complete the following:

Name: CARSON BORON  
Affiliation (if any): Republican State Committee Member  
Phone: 734-516-3276 ecology center  
Email: carebear.carson@gmail.com

Topics you wish to address today:

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If you wish to speak today, please complete the following:

Name: Erma Leaphart  
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Email: ved21@aol.com

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If you wish to speak today, please complete the following:

Name: Don LAUG  
Affiliation (if any): VP Energy - Emerge  
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Topics you wish to address today:

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If you wish to speak today, please complete the following:

Name: Rebecca Hammond

Affiliation (if any): \_\_\_\_\_

Phone: \_\_\_\_\_

Email: bhammond713@aol.com

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If you wish to speak today, please complete the following:

Name: Janret Schlaff  
Affiliation (if any): Michigan Interfaith Power and Light  
Phone: 313-444-8428  
Email: jaschlaff@gmail.com

Topics you wish to address today:

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- b.  Energy Optimization / Efficiency Standards
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(Please specify): \_\_\_\_\_

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If you wish to speak today, please complete the following:

Name: Simone Sagovae

Affiliation (if any): Detroit resident

Phone: (313) 717-8223

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Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
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(Please specify): public health energy costs

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If you wish to speak today, please complete the following:

Former State  
Legislator

Name: KATHLEEN LAW

Affiliation (if any): Rep. Emerita

Phone: 734 670 9761

Email: KATHLEENLAW@comcast.net

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): roadblocks to success  
RE policy

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Local permitting

# CONSIDERATIONS FOR OFFSHORE WIND IN MICHIGAN

## A REPORT TO THE MICHIGAN ENERGY OFFICE<sup>1</sup>

*FEBRUARY 2013*

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### REVIEW OF GLOW COUNCIL REPORT

The Michigan Great Lakes Offshore Wind (GLOW) Council reports of 2009 and 2010<sup>2</sup> represented a significant step forward for Michigan to evaluate the potential for offshore wind energy in Michigan's waters of the Great Lakes. The 2010 report identified the most and least desirable areas for offshore wind energy based on a set of 22 criteria established by the council in 2009. Five specific areas were identified as favorable:

1. Southern Lake Michigan near Berrien County
2. Northern Lake Michigan near Delta County
3. Central Lake Superior near Alger County
4. Central Lake Huron (out from Saginaw Bay)
5. Southern Lake Huron near Sanilac County

The appropriate next step is to develop a regulatory framework that enables state regulators, developers and interested citizens to adequately assess the potential benefits and disadvantages of an actual offshore wind farm in Michigan's waters of the Great Lakes. The 2010 report addressed that step in part by providing input on a legislative framework for leasing Michigan's Great Lakes bottomlands and permitting offshore wind energy systems. The legislative framework outlined in the 2010 GLOW Council report includes a recommendation that the state offer certain parcels of Great Lakes bottomlands within the most favorable wind resource planning areas at a competitive public auction as soon as practicable following enactment of new legislation. It suggests permitting guidelines, leasing methods, and payment structures, and a proposed process for public input in decision-making.

Legislation was introduced into the Michigan House of Representatives in 2010 (House Bill 6564) based on the GLOW Council recommendations, but that legislation never received serious consideration by the legislature. Subsequent changes in state leadership, lingering backlash from an ill-fated 2009 private offshore wind proposal near Ludington, and changes in electric energy markets significantly slowed interest in moving legislation and the development of an offshore

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<sup>1</sup> This report was prepared by Victoria Pebbles, Program Director at the Great Lakes Commission under contract to the Michigan Energy Office. The views expressed herein do not necessarily reflect those of the Great Lakes Commission.

<sup>2</sup> <http://www.michiganglowcouncil.org/>

wind regulatory framework in Michigan. Without a clear process for evaluating offshore wind proposals, the state remains in a regulatory limbo concerning offshore wind.

## LACK OF REGULATORY FRAMEWORK: IMPLICATIONS

Although Michigan has a suite of environmental and coastal management laws, there is no framework to efficiently and effectively evaluate offshore wind projects for their potential impacts on Michigan's environment or the economy. Had the proposed 2010 legislation passed, rules would have been developed to implement that legislation which would have articulated a process by which offshore wind proposals could be appropriately evaluated by state regulators and other relevant state authorities, and by which the public could have appropriate input into that process. (The 2010 GLOW Council report addressed the issue of public input in decisionmaking which was included as part of the proposed 2010 legislation.) Absent adequate institutional mechanisms to properly evaluate such proposals—and a formal structure to engage the public offshore wind decisionmaking—state regulators are poorly-equipped to make well-informed decisions about the merits and disadvantages of a proposed project. Similarly, the public and coastal communities are left to decipher the pros and cons of a project without the benefit of a robust analysis that considers the full array of impacts, both positive and negative, based on vetted criteria and a democratic decisionmaking process. The situation makes it ripe for offshore wind proposals to receive reactionary responses from local communities and the public. It further puts state decisionmakers in the potentially difficult position of having to review a proposal without specific regulatory framework in place—leaving the results of any review ripe for a legal challenge. Moreover, the lack of a framework may well send a message to developers that the state is not interested in even considering offshore wind.

As a case in point, the backlash against offshore wind that Michigan is witnessing in the Ludington area stemmed from a foreign offshore wind developer (Scandia) who came to that local area with no knowledge of the local culture and without a state regulatory process that would ensure public input into any decisions regarding leasing of the state's bottomlands. Had a state regulatory framework been in place, the proposal would have triggered that state process for evaluating the propriety of such a proposal; the citizens of Ludington and Michigan alike would have been able to rely on the democratic process to manage a civil dialogue about the propriety of the project that included an assessment of the economic, social and environmental costs and benefits to the community and to the state overall.

## GREAT LAKES OFFSHORE WIND ENERGY CONSORTIUM

In March 2012, Governor Rick Snyder, along with four other Great Lakes governors, signed a bipartisan federal-state Memorandum of Understanding (MOU) establishing a Great Lakes Offshore Wind Energy Consortium (GLOWEC) to support the efficient, expeditious, orderly and responsible review of proposed offshore wind energy projects in the Great Lakes. This new regional forum sets the stage to revisit the issue of offshore wind from a regional perspective. The MOU recognizes state primacy for regulating Great Lakes bottomlands, while acknowledging that leasing, permitting, constructing and operating a wind farm will inevitably trigger multiple federal regulatory and review authorities. The GLOWEC provides an institutional arrangement to bring necessary state and federal agencies to the table to coordinate all regulatory and permit review interests related to offshore wind development in the Great Lakes. Further, the GLOWEC implicitly recognizes that

there are regional implications associated with the infrastructure needed to construct and maintain an offshore wind facility (vessels, transmission, etc.), even though a specific project is likely to be in the waters of a single state.

The GLOWEC is charged with developing a regulatory roadmap by June 30, 2013 that describes the regulatory review process and identifies current and anticipated data needed to inform efficient review of proposed offshore wind energy facilities in the Great Lakes. The MOU does not prescribe the development or implementation of new state or federal administrative rules or regulations pertaining to offshore wind development. However, by assessing existing rules, processes and regulations currently required under existing law and policy, as is required for the regulatory roadmap, the work of the GLOWEC is likely to uncover area where existing policy and rules are insufficient to appropriately evaluate an offshore wind proposal.

The GLOWEC met in May, 2012. Subsequently, a template was developed to collect state and federal permitting information as called for by the MOU. Information about existing permitting that would affect offshore wind in Michigan has been compiled which partly satisfies the offshore wind regulatory roadmap for Michigan as required by the MOU. Additional work is needed to review and quality control the information compiled to date and to provide it in a “roadmap” format that will be useful to regulators and developers. The Great Lakes Commission is in discussions with the White House Council on Environmental Quality to secure resources to coordinate the Great Lakes the states in this endeavor to meet the June 2013 deadline as per the MOU.

## KEY AREAS FOR FUTURE RESEARCH AND POLICY SUPPORT

The Wind Program of the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy is advancing a national strategy for offshore wind research and development.<sup>3</sup> The Wind Program is leading market analysis and technology development research that will overcome key barriers including the relatively high cost of energy, the mitigation of environmental impacts, the technical challenges of project installation, and grid interconnection. Several projects have been funded and are underway at the national and regional levels with import for offshore wind the Great Lakes.<sup>4</sup> Key issues for the Great Lakes are summarized below.

### *ICE AND TRANSMISSION*

The primary technical barrier for offshore wind is the issue of ice. Although the icing is not as extreme in saltwater environments, lessons can be learned from those European offshore wind farms which contend with ice issues (e.g., they have ice breaking cones or barriers that break up the ice). Research is underway at federal agencies, federal laboratories and universities to try to design systems that can enable offshore wind farms to be built, operated and maintained without risks associated with ice.<sup>5</sup> There are two primary concerns related to ice: ice buildup on or around the

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<sup>3</sup> *A National Offshore Wind Strategy: Creating an Offshore Wind Industry in the United States*, U.S. Department of Energy, 2011. [http://www1.eere.energy.gov/wind/pdfs/national\\_offshore\\_wind\\_strategy.pdf](http://www1.eere.energy.gov/wind/pdfs/national_offshore_wind_strategy.pdf)

<sup>4</sup> Information about specific DOE-funded projects can be found online at [http://www1.eere.energy.gov/wind/offshore\\_wind.html](http://www1.eere.energy.gov/wind/offshore_wind.html)

<sup>5</sup> The Icebreaker offshore wind project off the coast of Cleveland proposes to use monopile foundations designed to reduce ice loading. Research on icing and wind turbines is being conducted at the University of

turbine (floe, driving ice, etc.) and the buildup of ice on wind turbine blades due to the spray of a breaking wave (which could result in ice throw). A second, but no less important technical issue is constructing submerged electric transmission systems and connecting them to the existing grid.<sup>6</sup>

### *ECOLOGICAL IMPACT DATA AND INFORMATION*

Research on ecological impacts from offshore wind in the Great Lakes is just beginning. Although there are currently no U.S. state offshore wind permitting programs for the Great Lakes, existing state environmental rules, and proposed state rules and legislation designed to address offshore wind, indicate that ecological information will be required for states to properly evaluate and make permitting decisions related to leasing and operating wind farms in the Great Lakes. Additionally, the placement of structures in navigable waters of the U.S. will require an Environmental Impact Statement or Environmental Assessment under the National Environmental Policy Act. At the present time, the body of scientific literature about ecological impacts of wind energy is still relatively young.

Great Lakes region-specific research, particularly as it relates to offshore wind, is notably lacking. Answers are needed to questions such as: What are acceptable levels of take for a species? What are appropriate buffers from important ecological areas? How is “ecologically-defensible” determined? Research is needed to answer these questions, which may take years and possibly decades. State regulators and other decisionmakers may not have the luxury to have all of the answers about ecological impacts before needing to make a decision regarding offshore wind. Some type of standardized survey and monitoring protocols are needed as part of a regulatory framework that can allow wind development proposals to be evaluated and decisions to be made that uses the best information available.<sup>7</sup> A 2012 workshop hosted by the Great Lakes Wind Collaborative brought European experts to the Great Lakes region to discuss research findings related to offshore wind impacts on fish. The workshop summary to be released in early 2013 will help define the key regulatory and research questions with respect to potential fishery impacts.<sup>8</sup>

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Michigan, among other universities in the region. More information about icing patterns on the Great Lakes is provided by Wang, J., 2012. *Spatial and Temporal Variability of Great Lakes Ice*. Presented at the 2012 GLWC Workshop: Offshore Wind Energy – Understanding Impacts on Great Lakes Fishery and other Aquatic Resources <http://www.glc.org/energy/wind/fishimpact/pdf/Wang-WindEnergy-AA-Nov29-2012.pdf>

<sup>6</sup> *Transmission-Related Policy Options to Facilitate Offshore Wind in the Great Lakes*. University of Michigan School of Natural Resources Masters Project prepared for the Great Lakes Wind Collaborative. April, 2011 [http://www.glc.org/energy/wind/publications/pdfs/Transmission-Policies-for-GL-Offshore-Wind\\_FINAL.pdf](http://www.glc.org/energy/wind/publications/pdfs/Transmission-Policies-for-GL-Offshore-Wind_FINAL.pdf)

<sup>7</sup> *State of the Science: An Assessment of Research on the Ecological Impacts of Wind Energy in the Great Lakes Region*. Great Lakes Wind Collaborative, October, 2011. <http://www.glc.org/energy/wind/sosworkshop/pdf/Scientific-Assessment-Report-final.pdf>

<sup>8</sup> Neihnhuis, S. and Dunlop, E.S., 2011. *Potential effects of offshore wind power projects on fish and fish habitat in the Great Lakes*. [http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@aquatics/documents/document/stdprod\\_103058.pdf](http://www.mnr.gov.on.ca/stdprodconsume/groups/lr/@mnr/@aquatics/documents/document/stdprod_103058.pdf)

A late 2012 U.S. Department of Energy award to the Great Lakes offshore wind project, *Icebreaker*, affords Michigan and other Great Lakes states an opportunity to learn from the environmental permitting process (and content) that will be undertaken as part of that project in 2013.

### *DECISION SUPPORT TOOLS*

The Great Lakes Wind Collaborative is working with its membership to build on Michigan's Lakebed Alteration Assessment Tool (which was used to inform the GLOW Council's work) and the Great Lakes Wind Atlas to develop of a Great Lakes-wide wind siting tool. The concept is to establish a user-friendly GIS-based mapping tool that allows users to see if certain areas of the lakebed are more or less suitable for proposed activities—including offshore wind. Such a tool could assist the state of Michigan in evaluating offshore wind proposals. It would serve as a screening tool, much like the Michigan Water Withdrawal Assessment Tool helps proponents and regulators screen proposed water withdrawals in the state.

### NEXT STEPS FOR OFFSHORE WIND IN MICHIGAN

The next logical step for Michigan would be to implement the GLOW Council recommendations through a combination of regulatory and administrative rulemaking, legislation, guidance documents, and decision support tools. Some of the GLOW Council recommendations, such as payment structures will require new legislation, while other activities, such as leasing methods, could be accomplished by modifying existing rules. Still, other recommendations, such as permitting guidelines, could be developed by the lead executive agency (DEQ) without any formal legislative or regulatory action. State guidelines for offshore wind would likely to be the most efficient and effective next step given political divisiveness and competing priorities within the Michigan legislature. Michigan state guidelines were developed in the past for onshore wind siting; it would be reasonable for the state to issue offshore wind guidelines on offshore wind permitting. This could be accomplished relatively easily by using the information gathered through the GLOWEC with the information and recommendations of the GLOW Council. This would provide some clarity to potential developers, provide the public with the much-needed assurance that the state has thought through the key issues related to offshore wind and is prepared to establish a process for public input in decisionmaking.

### MICHIGAN'S PUBLIC TRUST RESPONSIBILITIES

Because adjacent communities would likely reap more of the impacts of offshore wind, both positive and negative, it is reasonable that their voices should be given additional weight in the consideration of offshore wind proposals. However, the bottomlands of the Great Lakes belong to the state of Michigan,<sup>9</sup> not the communities adjacent to the lake. The decision about what happens

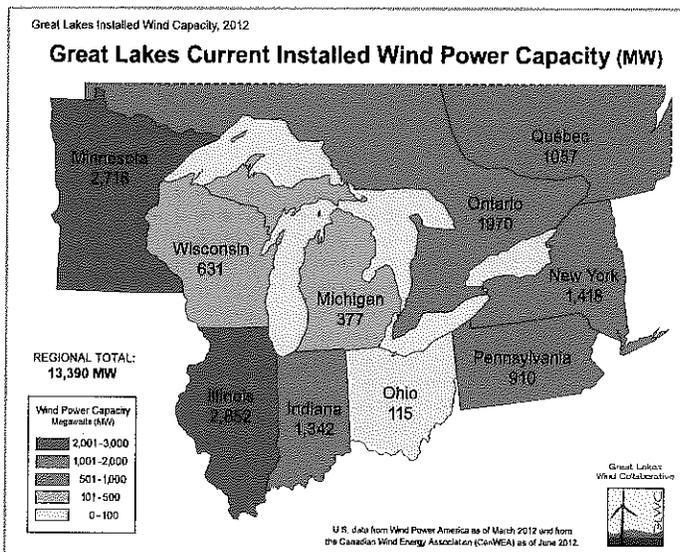
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<sup>9</sup> As per the Public Trust Doctrine, Great Lakes bottomlands are held in trust for the citizens of the state.

to those bottomlands should be made by the state.<sup>10,11</sup>

## JOBS AND ECONOMIC DEVELOPMENT IMPACTS

A 2008 analysis by the National Renewable Energy Laboratory<sup>12</sup> for the GLWC showed that an additional 1,000 MW of wind development in each of the 8 Great Lakes states (8,000 MW) would produce more than \$9 million in lifetime economic output impacts, including 97,000 jobs over the 20 year life of the project. This same analysis showed that a commensurate reduction in fossil fuel



generation would eliminate 23 million tons of CO<sub>2</sub> emissions and save 11 million gallons of water *each year*. That same analysis also showed that a 20% wind scenario for the region would create nearly 750,000 jobs (not including manufacturing) with more nearly \$80 billion in lifetime economic output. What is significant about these figures from 2008 is that at the time the analysis was performed, the U.S. was purchasing all of its turbines from overseas and the analysis assumed no U.S. manufacturing or any jobs associated therewith.

A 2012 study by Illinois State University on the Jobs and Economic Development Impact of Offshore wind in the Great Lakes looked at the jobs and economic development impacts from low, medium and high offshore wind installations in the Great Lakes. This study which *did* incorporate domestic manufacturing content indicated that 2,000 megawatts of installed offshore wind in the Great Lakes

<sup>10</sup> The landmark U.S. Supreme Court decision, *Illinois Central Railroad v. Illinois*, established the state's trustee responsibilities for submerged lands.

<sup>11</sup> Shafer, C., 2008. *The Public Trust Doctrine and Offshore Energy Facilities: Modern Application of an Ancient Doctrine*. Presented at the 2008 International Submerged Lands Conference.

<http://www.submergedlands.com/conferences.html>

[http://www.mcatoolkit.org/pdf/ISLMC\\_08/The Public Trust Doctrine and Offshore Energy Facilities Modern Application of an Ancient Doctrine.pdf](http://www.mcatoolkit.org/pdf/ISLMC_08/The_Public_Trust_Doctrine_and_Offshore_Energy_Facilities_Modern_Application_of_an_Ancient_Doctrine.pdf)

<sup>12</sup> Lantz, E., 2008. *Great Lakes Region Economic, Carbon, and Water Impacts from Wind Power, summary of impacts, methodology, and considerations. Wind Powering America*

by 2020 would generate more than 50,000 jobs during construction. Of these, more than 20,000 would be supply chain-related (i.e., manufacturing) and more than 1,500 total jobs would be created per year over the life of the project (20 years).

A scenario with 10,000 megawatts of installed wind in the Great Lakes by 2030 would create more than 400,000 jobs during construction, including nearly 200,000

Scenario	2,000 MW by	10,000 MW by
	2020	2030
Construction Period Jobs		
	Jobs	Jobs
Project Development and Onsite Labor Impacts	6,446	50,445
Construction and Interconnection Labor	5,026	43,345
Construction-related Services	1,420	7,101
Turbine and Supply Chain Impacts	23,635	198,028
Induced Impacts	20,370	165,730
<b>Total Impacts</b>	<b>50,451</b>	<b>414,203</b>

Great Lakes Offshore Wind Jobs and Economic Development Impact Analysis, 2012

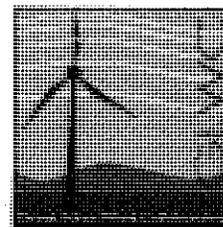
manufacturing-related jobs. These studies are examples of how this industry might evolve across the region; other studies may use different assumptions and produce different results across the region or within individual states.

## MICHIGAN AND THE GREAT LAKES WIND COLLABORATIVE

The Great Lakes Wind Collaborative (GLWC) continues to serve as the forum for Great Lakes states and provinces to network with business interests, utilities, environmental groups, academic institutions, and wind developers on technical, scientific and regulatory aspects of wind energy development. Secretariat services for the GLWC are provided by the Great Lakes Commission, ensuring relevant state and provincial agency access to the information generated by and priorities pursued by the GLWC.

The GLWC will continue to serve Michigan's interests related to wind energy, and offshore wind energy in particular by identifying and promoting best practices, sharing relevant knowledge and information, developing decisions support tools like the Great Lakes Wind Atlas, and facilitating dialogue and building consensus among diverse interests. The following resources are available at the GLWC web site to assist the state of Michigan in developing appropriate and timely policies, initiatives, and programs related to wind energy in the Great Lakes region (<http://www.glc.org/energy/wind>) include:

- *State of the Science: An Assessment of Research on the Ecological Impacts of Wind Energy in the Great Lakes Region*, October, 2011
- *Best Practices for Sustainable Wind Energy Development in the Great Lakes Region* July, 2011
- *The Role of the Great Lakes-St. Lawrence Seaway Ports in the Advancement of the Wind Energy Industry*, September, 2010
- *State and Provincial Land-Based Wind Farm Siting Policy in the Great Lakes Region: Summary and Analysis*, January, 2010
- *Offshore Siting Principles and Guidelines for Wind Development on the Great Lakes*, October, 2009
- *Preparation for Offshore Wind in Lake Michigan: Information Solicitation Options for Michigan and Wisconsin*, August, 2009



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## Potential of Renewable Energy for Michigan's Future

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Prepared by the Great Lakes Wind Collaborative<sup>1</sup>

For the 2013 "Readying Michigan to Make Good Energy Decisions" to assist Governor Snyder's efforts to gather public input on Michigan's energy future

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The Great Lakes Wind Collaborative (GLWC) is pleased to provide input on the potential role of wind energy for Michigan's energy future. The Great Lakes Wind Collaborative is commenting on wind energy specifically because this wind energy is the focus of the collaborative and where the members have the most expertise.

The GLWC is a multi-stakeholder coalition that aims to facilitate and support a coordinated, sustainable approach to addressing wind energy deployment and use issues in the Great Lakes region. GLWC Members represent a wide spectrum of interests throughout the binational Great Lakes region, including wind developers, federal, state, provincial and local government representatives, environmental non-profit organizations, utilities, academic institutions and others. GLWC members are committed to working together to identify and address the technical, environmental, regulatory, educational and financial issues related to the deployment of wind energy resources. The credibility of the GLWC's work derives from the fact that they were developed through collaborative processes and consensus building.

The GLWC recognizes that wind energy decisions are part of a broader consideration of environmental, social, and economic costs and benefits of energy and power and applauds Governor Snyder for recognizing this context in the effort explore "affordable and reliable energy and no regrets for our future" --Michigan's energy future. The governor's energy forums provide an important opportunity to develop solutions that will lower electricity costs for Michigan families and businesses, while in turn, diversifying the state's energy portfolio.

### Affordability

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Affordability depends on many factors, including the cost of the energy source, any fuel or driver needed to convert that energy into power (e.g. water used for thermo-electric combustion), and on the benefits that reduce other economic, social or environmental costs in a broader context.

The fuel source for wind power is wind, which is free and of limitless supply. Unlike coal or natural gas, the price of the wind as fuel source will never go up or down with market cycles wind will always be free. Affordability should also consider the costs of turning the fuel source into power, or electricity. Converting wind into power requires wind turbines. The cost of wind turbines has varied in the past

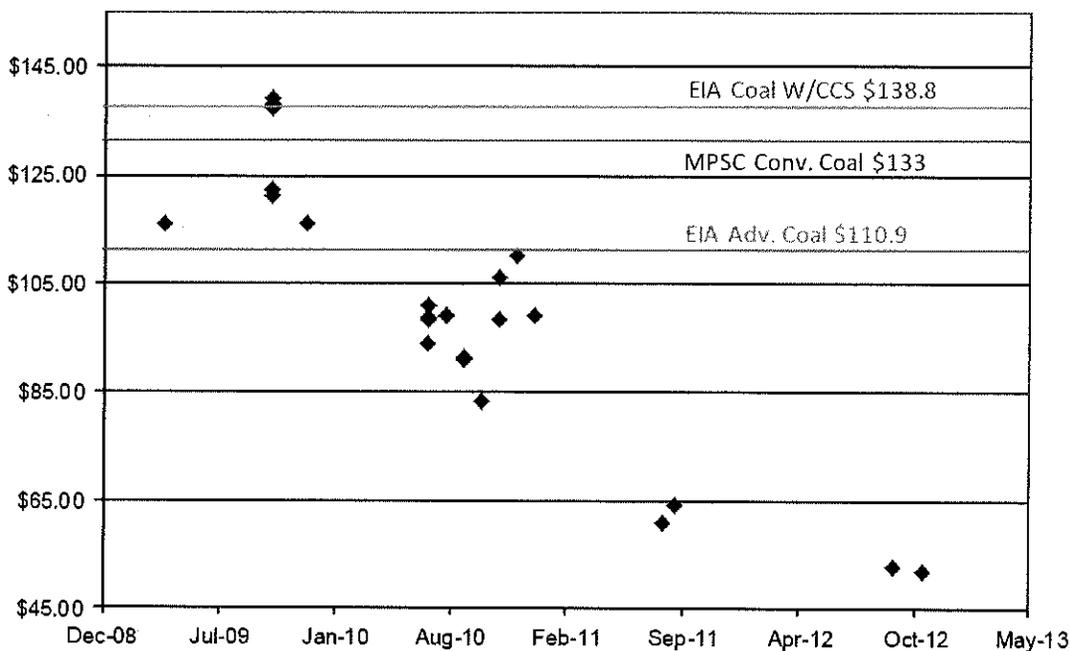
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<sup>1</sup> The Great Lakes Commission has served as the Secretariat for the Great Lakes Wind Collaborative (GLWC) since 2008 when the Collaborative was formed. Contact Victoria Pebbles at [vpebbles@glc.org](mailto:vpebbles@glc.org) or 734-971-9135.

decade, and following an increase in the late 2000s (as turbine sizes increased), prices have declined since 2008, while capacity factors (efficiency) have increased<sup>2</sup>.

Onshore wind in Michigan has become cost competitive with natural gas and it may have some benefits of locking in power prices for a long period that would hedge against the possibility that natural gas prices would increase in the future. Therefore, increasing the share of Michigan power that comes from onshore wind offers a cost effective option.

The third annual Michigan Public Service Commission report on the implementation of the state's renewable energy standard and its cost effectiveness has recently been issued.<sup>3</sup> The report indicates that the actual cost of renewable energy contracts (mostly wind energy contracts) submitted to the



**Figure 1: Levelized Cost of MPSC-Approved Contracts Over Time Compared to the Cost of New Coal Fired Facilities.** From Michigan Public Service Commission February 2013 Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards

<sup>2</sup> Bolinger, M., and Wiser, R., Understanding Trends in Wind Turbine Prices Over the Past Decade, Lawrence Berkeley National Laboratory, October 2011, available from <http://eetd.lbl.gov/ea/emp>.

<sup>3</sup> Michigan Public Service Commission, 2013. Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards. [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)

Commission continue to go down. The most recent contracts approved by the Commission for new wind capacity have leveled costs in the \$52 per MWh range which is about 10 percent less than the cheapest leveled contract prices from a year ago, half the leveled cost of the first renewable energy contracts approved in 2009 and 2010, and well below costs of advanced coal-fired units. The downward trend is shown in Figure 10 from the recently issued MPSC report.

Thermoelectric water **withdrawal** from Great Lakes basin power plants by fuel type and cooling technology in millions of gallons per day (MGD).

Fuel Type	Open-Loop	Closed-Loop	TOTAL
Coal	15245	860	16105
Nuclear	7020	619	7639
Oil	267	0.4	267.4
Gas	539	341	880
Renewables	N/A	316	316
<b>TOTAL</b>	<b>23071</b>	<b>2136.4</b>	

Meanwhile, converting fossil fuels to power requires a facility to extract the raw fuel source, pipelines or trucks to transport the fuel, a plant or facility that uses energy to convert the fuel into power. All of these, the mining/extraction, the pipelines/trucks (and the roads they use), and the power plants have hard costs. Each of these steps in the fossil-fuel-based energy value chain also has environmental and public policy externalities that are often not factored in, such as the costs of road maintenance and repair, harmful air emissions from the trucks and the power plants (including carbon), and the vast amounts of water used, degraded or lost (see below).

Thermoelectric water **consumption** from Great Lakes basin power plants by fuel type and cooling technology in millions of gallons per day (MGD).

Fuel Type	Open-Loop	Closed-Loop	TOTAL
Coal	151	9	160
Nuclear	191	37	228
Oil	3	0	3
Gas	2	5	7
Renewables	N/A	4	4
<b>TOTAL</b>	<b>347</b>	<b>55</b>	

What is affordable for Michigan should not only consider costs by today's market value, but also long term costs, intangible costs (social and environmental externalities) as well as benefits. Simply put, affordability equals costs minus benefits. Some costs can be easily monetized (the costs of a wind turbine) while others are more difficult (e.g., public health and environmental impacts associated with mercury emissions from coal fired power plants). We urge that the issue of affordability consider present and

Source: Sandia National Laboratories, 2010

future market and non-market (e.g., social and environmental) values. The following discussion offers some perspective on considering the relationship between power generation and water resource impacts.

#### Consideration of the Energy-Water Nexus: No Regrets for Michigan's Water Resources

In 2006, nearly 70 percent of the 8-state Great Lakes region's electric supply came from fossil fuel (coal, petroleum, and gas-fired) thermoelectric power plants, while more than 25 percent of the region's electricity came from nuclear plants.<sup>4</sup> The most recent data available show the picture has not changed much.<sup>5</sup> The vast majority of this power is generated through "thermoelectric power generation"

<sup>4</sup> Great Lakes Commission, 2009. *The Energy Water Nexus: Implications for the Great Lakes*.

<sup>5</sup> Great Lakes Power Plant Fleet data set, compiled by Sandia National Laboratories, 2010.

whereby the heat from these fuels is used to convert purified water to high pressure steam which turns a turbine to generate electricity.<sup>6</sup>

The water used in thermo-electric power may be free, but it requires energy (and costs money) to pump the water to the plant and cool that water so it can be safely discharged into Michigan's cold-water ecosystems. Fish and other organisms may be caught in or killed by power plant cooling systems, and warmed discharge water may negatively affect habitat and have adverse life cycle impacts; these costs should be considered. Costs associated with cooling water used by power plants are likely to increase as our waters warm due to climate change. Pending federal clean air regulations will likely increase the cost of fossil fuel production as fossil fuel plants are required to install more sophisticated pollution control technologies.

Furthermore, other impacts from fossil fuel power plants can be significant. Coal-fired power plants remain the largest source of mercury emissions in the Great Lakes and nationally. Mercury is responsible for statewide fish consumption advisories in seven of the eight Great Lakes states, posing threats to human health (including neurodevelopmental impacts to children), fish (such as walleye), and wildlife (including fish-eating birds such as the common loon).<sup>7</sup> In addition, fossil fuel-driven climate change poses a number of threats to ecosystems and human well-being in the region, including further stresses to the Great Lakes (such as lower water levels, exacerbated hypoxia in some areas, increased harmful algal blooms), stresses to terrestrial species (e.g. moose), changes in agricultural productivity, and other impacts.<sup>8</sup>

The nexus between thermoelectric power production and water use has important implications for the water and water dependent natural resources of the Great Lakes Basin. A recent study by the Great Lakes Commission found that approximately one-quarter of all of the watersheds in the Great Lakes basin may be ecologically vulnerable to water withdrawals under certain "low-flow" conditions – conditions that are likely to be more frequent in the future as the impacts of climate change become more severe.<sup>9</sup> Additionally, more than half of the 102 watersheds studied were found to be at moderate to high risk of degrading ecological health due to additional thermal impacts. Already, more than a third of these watersheds in the Great lakes basin have water quality that is moderately to highly impaired according to the U.S. EPA and state reports. An interactive map allows users to see which watersheds in Michigan are vulnerable, where existing power plants are located, and how much water they use (<http://erie.glin.net/glew/>).

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<sup>6</sup> Pebbles, V. and C. Bradley, 2011. *Integrating Energy and Water Resources Decision Making in the Great Lakes Basin: An Examination of Future Power Generation Scenarios and Water Resource Impacts*. Great Lakes Commission. Ann Arbor, Michigan.

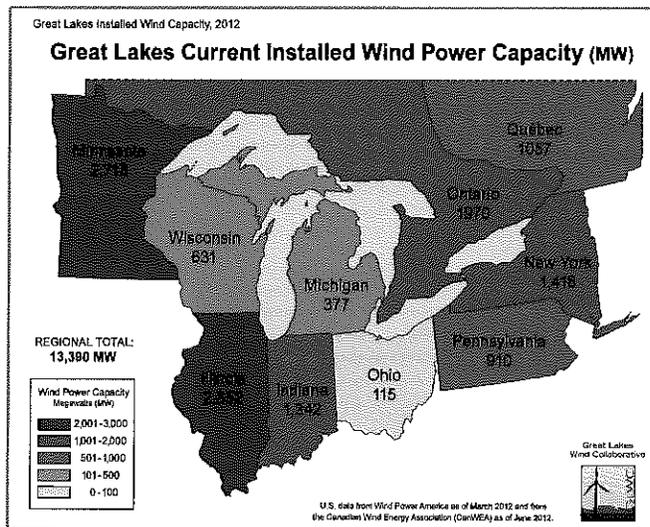
<sup>7</sup> Evers, D.C., Wiener, J.G., Driscoll, C.T., Gay, D.A., Basu, N., Monson, B.A., Lambert, K.F., Morrison, H.A., Morgan, J.T., Williams, K.A., Soehl, A.G. 2011. *Great Lakes Mercury Connections: The Extent and Effects of Mercury Pollution in the Great Lakes Region*. Biodiversity Research Institute. Gorham, Maine. Report BRI 2011-18. 44 pages, and references therein.

<sup>8</sup> See for example: Kling, G.W., K. Hayhoe, L.B. Johnson, et al., 2003. *Confronting Climate Change in the Great Lakes Region: Impacts on our Communities and Ecosystems*. Union of Concerned Scientists, Cambridge, Massachusetts, and Ecological Society of America, Washington, D.C.; and *U.S. National Climate Assessment Midwest Technical Input Report*. J. Winkler, J. Andresen, J. Hatfield, D. Bidwell, and D. Brown, coordinators. Available at [http://glisa.umich.edu/docs/NCA/MTIT\\_Biodiversity.pdf](http://glisa.umich.edu/docs/NCA/MTIT_Biodiversity.pdf).

<sup>9</sup> Pebbles and Bradley, 2011.

## Reliability

The GLWC recognizes that wind is part of a diverse energy portfolio for the Great Lakes region, including all of Michigan. The GLWC accepts that wind is variable—it does not blow at the same intensity across the same area at all times. That said, the GLWC does not equate variability with unreliability. The GLWC believes—and credible studies show—that some wind variability can be diminished through transmission improvements as well as integrating other renewable energy sources. A number of efforts are underway to address planning and reliability considerations as wind and other renewable sources continue to grow, such as through the North American Electric Reliability Corporation Integrating Variable Generation Task Force.<sup>10</sup> Currently, MISO uses a probabilistic planning technique to assess wind energy's contribution to overall capacity, to aid in integration and reliability.<sup>11</sup> Policy approaches to help address regional transmission issues with offshore wind generation in the Great Lakes have been identified.<sup>12</sup> The GLWC believes that investments in transmission, and improved coordination among and accountability by Regional Transmission Organizations can improve electric power system reliability and balance power to maximize the timely delivery of clean, renewable energy, including wind.



Like affordability, reliability also deserves consideration in context of the energy's value chain. Wind may be variable, but the wind energy value chain has far fewer links that can be disrupted or broken. In contrast to wind, fossil fuels must be extracted, processed and transported; each of these steps in the fossil energy value chain is subject to secondary reliability (and social and environmental) risks inherent to these processes: oil and gas drilling accidents (and potential threats to water supplies from routine hydraulic fracturing operations), pipeline leaks/oil spills (e.g., the 2010 Enbridge incident that leaked more than 1 million gallons of oil into the Kalamazoo

River, and natural gas pipeline explosions such as the San Bruno, CA September 2010 explosion that killed eight people), trucking or shipping accidents. In the case of potential spills in the Great Lakes which provide drinking water to 26 million people, the stakes are even higher.

## A Sustainable Energy Future for Michigan

A sustainable energy future for Michigan will leverage Michigan's inherent natural and human capital assets in ways that enhance their quality and productivity over the long term. While wind energy is not without its own environmental risks, the GLWC believes that wind offers inherent advantages over most conventional forms of electric power. The GLWC Best Practices Toolkit" offers many suggested policies

<sup>10</sup> North American Electric Reliability Corporation, 2012 Long-Term Reliability Assessment, November 2012, available from [http://www.nerc.com/files/2012\\_LTRA\\_FINAL.pdf](http://www.nerc.com/files/2012_LTRA_FINAL.pdf).

<sup>11</sup> *ibid.*

<sup>12</sup> Balanchander, A. et al., 2011. Transmission-Related Policy Options to Facilitate Offshore Wind in the Great Lakes, prepared for Great Lakes Wind Collaborative, available from <http://deepblue.lib.umich.edu/handle/2027.42/83515>.

and practices that states can adopt to improve how, when and where wind energy development occurs and to ensure that wind energy development occurs in a sustainable manner. These include smart wind energy siting policies, for onshore and offshore (<http://www.glc.org/energy/wind/bestpractices.html>).

Michigan has a considerable latent, yet talented, manufacturing workforce with skills that can be readily transferred to support the renewable energy industry, including wind. According to the Cleveland-based GLWN, Global Wind Network, Michigan is driving the future of North America’s wind industry with technology-leading manufacturers such as Holland’s Energetx Composites (blades), Monroe’s Ventower (towers), and Eaton Rapid’s Astraeus (machining). As part of the Great Lakes region supply chain, Michigan manufacturers are well positioned logistically to play an important role in the development of the offshore wind industry. A solid network of fabrication facilities located near Michigan’s coast will serve as an advantage in the production of offshore foundations and equipment.

A 2008 analysis by the National Renewable Energy Laboratory<sup>13</sup> for the GLWC showed that an additional 1,000 MW of wind development in each of the 8 Great Lakes states (8,000 MW) would produce more than \$9 billion in lifetime economic output impacts, including 97,000 jobs over the 20 year life of the project. This same analysis showed that a commensurate reduction in fossil fuel generation would eliminate 23 million tons of CO<sub>2</sub> emissions and save 11 million gallons of water *each year*. That same analysis also showed that a 20% wind scenario for the region would create nearly 750,000 jobs (not including manufacturing) with more nearly \$80 billion in lifetime economic output. What is significant about these figures from 2008 is that at the time the analysis was performed, the U.S. was purchasing all of its turbines from overseas and the analysis assumed no U.S. manufacturing or any jobs associated therewith.

Scenario	2,000 MW by	10,000 MW by
	2020	2030
Construction Period Jobs	Jobs	Jobs
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Great Lakes Offshore Wind Jobs and Economic Development Impact Analysis, 2012

A 2012 study by Illinois State University<sup>14</sup> on the Jobs and Economic Development Impact of Offshore wind in the Great Lakes looked at the jobs and economic development impacts from low, medium and high offshore wind installations in the Great

Lakes. This study which did look at domestic manufacturing input indicated that 2,000 megawatts of installed offshore wind in the Great Lakes by 2020 would generate more than 50,000 jobs during construction. Of these, more than 20,000 would be supply chain-related (i.e., manufacturing) and more than 1,500 total jobs would be created per year over the life of the project (20 years).

A scenario with 10,000 megawatts of installed wind in the Great Lakes by 2030 would create more than 400,000 jobs during construction, including nearly 200,000 manufacturing-related jobs. Compared to the

<sup>13</sup> Lantz, E., 2008. Great Lakes Region Economic, Carbon, and Water Impacts from Wind Power, summary of impacts, methodology, and considerations. Wind Powering America

<sup>14</sup> Loomis, D., 2012. Jobs and Economic Development Impact of Offshore Wind in the Great Lakes Region

Great Lakes Wind Collaborative  
March, 2013

previous scenario, the five-fold increase in installed wind resulted in an eight-fold increase in job creation. These results are based on gross job growth.

For each type of energy, costs *and benefits*, now and into the future, should be carefully weighed and considered in determining an appropriate energy mix for Michigan's energy future. Additional resources that can help ensure sustainable wind development is part of that future are available on the GLWC web site at <http://www.glc.org/energy/wind/publications.html>.



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**Michigan Energy Public Forum Statement Card**

If you wish to speak today, please complete the following:

Name: Rhonda Anderson

Affiliation (if any): Sierra Club

Phone: 313 965-0052

Email: rhonda.anderson@sierraclub.org

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): Clean Energy

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

Please leave a copy of any written or electronic materials at the welcome center.

You are encouraged to submit written feedback at [www.michigan.gov/energy](http://www.michigan.gov/energy).

# Environmental Injustice in Detroit

**The United States Environmental Protection Agency defines Environmental Justice as:**

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision making process to have a healthy environment in which to live, learn, and work.

At a time of many critical situations that are affecting residents of Detroit in areas finance, issues of health and quality of life have not received their proper attention.

A recent article (Feb.25, 2013) titled Lead exposure negatively impacts MEAP scores of Detroit school children states that Lead exposure in early childhood has been linked to lower performance on state achievement tests for many Detroit Public School students in several grades", along with other research "Air Pollution Around Schools Is Linked To Poorer Student Health and Academic Performance", conducted by Doctor's Paul Mohai, and Sangyun Lee of the University of MI, and Dr. Byoung-Suk Kweon of the University of Maryland, another study "Childhood Asthma and Exposure to Traffic and Nitrogen Dioxide" present a critical episode for Detroit's parents and children. Recent studies have identified Detroit as having the most polluted areas in the state of MI, and a disproportionate number of incidents of cancers in Detroit as well as Wayne County than in the rest of the state.

A study published in The New England Journal of Medicine dated February 1, 2007 titled "Long-Term Exposure to Air Pollution and Incidence of Cardiovascular Events in Women", leads me to also be concerned with the health situation of our seniors.

There is inordinate amount of evidence that leads us to say that Detroiters are being underserved when it comes to "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies".

MDEQ does not recognize cumulative impact nor do they have the resources to properly address the environmental concerns of people of color and low income communities that bear the brunt of heavy polluting industry.

Clean Energy is one of the leading solutions to Environmental Injustice. Dirty energy producers i.e., DTE Energy, Marathon Oil Refinery, are leading contributors to the health and quality of life disparities in

Good Afternoon,

My name is Bill Ghrist and I represent Washtenaw Community College. I am here today to express our need to see the Electric Choice cap be lifted This would allow all users presently in the que to have the opportunity to negotiate for the fairest price of electrical energy. WCC presently spends approximately 2 million dollars for electricity out of a 94.1 million dollar budget. Reducing our electricity cost combined with energy conserving measures would allow us to redirect budget dollars to educational needs as well as other technologies used in further reducing our overall energy consumption.

WCC sees HB 5503 as a viable solution for many businesses currently in the state as well as future businesses to control energy cost which has become an ever larger portion of operating budgets. We ask that the Governor, Public Service Commission, and State Legislator's work collaboratively and expeditiously to improve the energy cost and policies so that the great state of Michigan can move forward and prosper.

Thank you,



**Detroiters  
Working for  
Environmental  
Justice**

## **Principles of Environmental Justice**

The 17 Principles of Environmental Justice were adopted October 27, 1991, in Washington, DC.

"WE, THE PEOPLE OF COLOR, gathered together at this multinational People of Color Environmental Leadership Summit to begin to build a national and international movement of all peoples of color to fight the destruction and taking of our lands and communities, do hereby re-establish our spiritual interdependence to the sacredness of our Mother Earth; to respect and celebrate each of our cultures, languages, and beliefs about the natural world and our roles in healing ourselves; to ensure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and to secure our political, economic, and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of our communities and land and the genocide of our peoples, do affirm and adopt these Principles of Environmental Justice:

1. Environmental justice affirms the sacredness of Mother Earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.
2. Environmental justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias.
3. Environmental justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living beings.
4. Environmental justice calls for universal protection from nuclear testing and the extraction, production, and disposal of toxic/hazardous wastes and poisons that threaten the fundamental right to clean air, land, water and food.
5. Environmental justice affirms the fundamental right to political, economic, cultural and environmental self-determination of all peoples.
6. Environmental justice demands the cessation of the production of all toxins, hazardous wastes and radioactive materials, and that all past and current producers be held strictly accountable to the people for detoxification and the containment at the point of production.
7. Environmental justice demands the right to participate as equal partners at every level of decision-making including needs assessment, planning, implementation, enforcement and evaluation.
8. Environmental justice affirms the right of all workers to a safe and healthy work environment, without being forced to choose between an unsafe livelihood and unemployment. It also affirms the right of those who work at home to be free from environmental hazards.
9. Environmental justice protects the right of victims of environmental injustice to receive full compensation and reparations for damages as well as quality health care.
10. Environmental justice considers governmental acts of environmental injustice a violation of international law, the Universal Declaration on Human Rights and the United Nations Convention on Genocide.
11. Environmental justice must recognize a special legal and natural relationship between the Native Peoples and the U.S. government through treaties, agreements, compacts and covenants affirming sovereignty and self-determination.
12. Environmental justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all our communities and providing fair access to the full range of resources for all.
13. Environmental justice calls for the strict enforcement of principles of informed consent, and a halt to the testing of experimental reproductive and medical procedures and vaccinations on people of color.
14. Environmental justice opposes the destructive operations of multi-national corporations.
15. Environmental justice opposes military occupation, repression, and exploitation of lands, peoples, and cultures, and other life forms.
16. Environmental justice calls for the education of present and future generations that emphasizes social and environmental issues, based on our experience and an appreciation of our diverse cultural perspectives
17. Environmental justice requires that we, as individuals, make personal and consumer choices to consume as little of Mother Earth's resources and to produce as little waste as possible, and make the conscious decision to challenge and re-prioritize our lifestyles to ensure the health of the natural world for present and future generations."

*DWEJ has been a voice for environmental justice since 1994. To learn more and how to be involved, go to [www.dwej.org](http://www.dwej.org). See you there!*



DEPARTMENT OF LICENSING & REGULATORY AFFAIRS  
MICHIGAN PUBLIC SERVICE COMMISSION  
JOHN D. QUACKENBUSH, CHAIRMAN

RICK SNYDER  
GOVERNOR

MICHIGAN ECONOMIC DEVELOPMENT CORPORATION  
MICHIGAN ENERGY OFFICE  
STEVE BAKKAL, DIRECTOR

### Michigan Energy Public Forum Statement Card

If you wish to speak today, please complete the following:

Name: KAREN HAMMER  
Affiliation (if any): GREENACRES-WOODWARD CIVIC ASSOC.  
Phone: 313-813-3219  
Email: \_\_\_\_\_

Topics you wish to address today:

- a.  Renewable Energy Portfolio Standards
- b.  Energy Optimization / Efficiency Standards
- c.  Electric Choice
- d.  Other Additional Energy Topic

(Please specify): waste to energy  
& energy efficiency

Please prioritize and focus your comments to afford as many as possible, the opportunity to speak. The amount of time allowed for each speaker will be dependent upon the number of people requesting to speak. Please prepare for the time limit for each speaker to be in the 2 – 5 minute range.

Please leave a copy of any written or electronic materials at the welcome center.

You are encouraged to submit written feedback at [www.michigan.gov/energy](http://www.michigan.gov/energy).



# Shaping Tomorrow's Built Environment Today

ASHRAE, founded in 1894, is a building technology society with more than 50,000 members worldwide. The Society and its members focus on building systems, energy efficiency, indoor air quality, refrigeration and sustainability within the industry. Through research, standards writing, publishing and continuing education, ASHRAE shapes tomorrow's built environment today.

ASHRAE is headquartered in Atlanta, GA. The Government Affairs Office, located in Washington, DC, works with federal government leaders as well as other scientific and engineering societies, trade associations and public interest groups. For more information, visit [www.ashrae.org](http://www.ashrae.org) or contact Doug Read, Mark Ames, and Mark Wills in the Government Affairs Office.

ASHRAE  
Government Affairs Office  
1828 L Street NW, Suite 810  
Washington, DC 20036  
202-833-1830  
[www.ashrae.org/advocacy](http://www.ashrae.org/advocacy)  
[washdc@ashrae.org](mailto:washdc@ashrae.org)

## ENERGY EFFICIENCY FOR BUILDINGS AND HVAC&R EQUIPMENT

In the United States, residential and commercial buildings account for approximately 40% of the total primary energy use. Specifically, heating, ventilation, air conditioning, and refrigeration (HVAC&R), and water heating are responsible for about 75% of residential and 64% of commercial building site electrical energy use. Cost effective energy efficiency is critical for the economy, the environment and energy security.

ASHRAE members participate in integrated building design, operation and evaluation. They support building sustainability to assure safe, comfortable indoor environments while limiting the impact on the earth's natural resources. ASHRAE collaborates with other leading technical societies and is the leading developer of building energy standards. For example, federal law mandates ANSI/ASHRAE/IES Standard 90.1 as the basis for state energy codes for most larger buildings. ASHRAE's 2010 version of Standard 90.1 improves minimum energy efficiency by approximately 30% from the 2004 edition of Standard 90.1 Other standards and guidance from ASHRAE include Standard 189.1 for the Design of High-Performance Green Buildings, and the Advanced Energy Design Guides which provide tools for going beyond minimum requirements. Additionally, ASHRAE promotes design, construction and operation of highly energy-efficient buildings through its professional certifications, and by providing and disseminating technical information for the building and policymaking community.

ASHRAE helps policymakers address the technical and implementation barriers that can prevent the market from obtaining cost-effective energy efficiency.

### ASHRAE VIEW

***Congress should adopt legislation that improves building energy efficiency through equipment standards and performance-oriented building codes.*** Code-adopted standards save more energy than any other policy tools, and consensus standards (e.g., ANSI/ASHRAE/IES Standard 90.1) ensure technical and economic feasibility.

***Congress should assure that federal policies related to energy efficiency support innovation, reduce market barriers, include full environmental considerations, and ensure that government leads by the example of outstanding design, construction, and operation of its own buildings, whether owned or leased.*** Making new technologies and practices mainstream is the key to win-win strategies for the owners, the economy and the environment. The federal government itself is the nation's largest building owner, so the potential savings from leadership are greatest when government sets the example, and as a result encourages building owners to follow suit.

***Congress should appropriate increased funding for research, development, demonstration and deployment to advance energy efficiency and renewable energy technologies and practices.*** Funding by successive Administrations in Washington, DC has historically been based on technological innovation as a critical tool for ensuring that the nation has affordable, clean, and reliable energy, and helping stimulate innovation in the private sector.

### ASHRAE Resource Documents

International Green Construction Code and ASHRAE Standard 189.1, Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings  
ASHRAE Standard 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings  
ASHRAE Standard 90.2, Energy Efficient Design of Low-Rise Residential Buildings  
ASHRAE Standard 62.1, Ventilation and Acceptable Indoor Air Quality  
ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings  
ASHRAE Advanced Energy Design Guides for Buildings



**CONSUMERS ENERGY AND THE HEAT AND WARMTH FUND  
JOIN PURE MICHIGAN SOCIAL ENTREPRENEURSHIP CHALLENGE  
*\$15,000 and entrepreneurship training to be awarded for ideas and solutions  
addressing energy affordability and efficiency***

DETROIT, March 15, 2013 – As part of the Pure Michigan Social Entrepreneurship Challenge, a competition designed to advance ideas and solutions to address Michigan’s social challenges, Consumers Energy and The Heat and Warmth Fund (THAW) announced today a co-sponsorship of two cash prizes in a newly added prize category in ‘The Challenge’ to encourage energy affordability and efficiency for low-income communities.

In this new "Fostering Energy Affordability" category, Consumers Energy and THAW are seeking scalable solutions that encourage reductions in energy use and development of tools to foster energy affordability within low-income communities. As part of the sponsorship, Consumers and THAW will also support events and relevant programs for participants in The Challenge. There is a \$10,000 cash prize for an emerging company and a \$5,000 cash prize for new business idea.

"We are thrilled to support the development of innovative ideas in the social sector, especially around energy," said Patti Poppe, vice president of customer experience and operations at Consumers Energy.

Created by Michigan Corps, in partnership with Great Lakes Entrepreneurs' Quest (GLEQ) and the Michigan Economic Development Corporation (MEDC), The Pure Michigan Social Entrepreneurship Challenge invites individuals and teams to submit plans for an emerging company or a new business idea focused on sustainable social change in a wide range of areas including but not limited to urban revitalization, energy, environment, health, and education.

"This is a great opportunity to tap the talent that exists in the state of Michigan," said Susan Sherer, THAW, CEO. "We have some innovative thinkers in this state and it will be exciting to see the ideas that come forward."

In addition to the \$15,000 award for the "Fostering Energy Affordability," The Pure Michigan Social Entrepreneurship Challenge will award more than \$50,000 in MEDC sponsored cash prizes, as well as provide coaching, mentorship, networking and resources to advance new ideas and emerging organizations that create new solutions to persistent social problems.

"In rewarding the best new ideas in energy efficiency, this competition will boost Michigan’s home grown entrepreneurs and jump-start new business ventures, and at the same time help our cash-strapped cities save energy and money," said MEDC President and CEO Michael A. Finney.

Social entrepreneurs are invited to complete a brief registration form at [GLEQ.org](http://GLEQ.org) to begin their participation in the Challenge. The registration deadline will be extended to April 10th to accommodate this newly announced "Fostering Energy Affordability" Prize. Applicants who register before the previously established deadline of March 27<sup>th</sup> will have access to a volunteer coach to support the preparation of their submission. All participants will have access to special events to support the development of their entry to be submitted by the May 20, 2013 deadline. A special Social Entrepreneurship Showcase and Pitch event will take place on June 18 at GLEQ's Entrepreneur Connect event in Lansing, MI.

To apply or learn more about the Pure Michigan Social Entrepreneurship Challenge visit <http://michigancorps.org/TheChallenge> . For more information, contact Michigan Corps Director Elizabeth Garlow at [egarlow@michigancorps.org](mailto:egarlow@michigancorps.org)



**Hungry Howie's**

**FLAVORED CRUST PIZZA**

**PROPERTIES, INC.**

March 25, 2013

Dear Mr. Bakka & Chairman Quakenbush,

I have asked Dillon Energy Services' representatives to speak on behalf of Hungry Howie's and to submit written testimony at Governor Snyder's energy forum today since I am not able to attend.

Hungry Howie's is one of the Michigan companies which is fortunate to have enrolled in the Electric Choice Program in December of 2009 before the Cap was filled. Since that time, our company has realized electric savings of \$100,000 +. Since we are so pleased with these savings, we have extended our contract on Electric Choice to January 2015.

As much as Hungry Howie's benefits from enrollment in the Electric Choice Program, our business has also been negatively impacted recently by the current Cap. Here are a couple of examples:

1. One of our store locations was forced to relocate just a couple of blocks away from its original location. Since electric choice is attached to the meter and not the customer, the new store location was removed from the program. Hungry Howie's was forced to pay the Full Service Tariff Rate which is an estimated 20-30% higher than the Retail Access Open Tariff Rate (electric choice supplier rate). We found ourselves unwittingly in violation of our contract with the supplier and had to pay a penalty. If the Cap had not been in place, we would have been able to re-enroll the location on Electric Choice, to continue to save with the Retail Access Open Tariff Rate and would not have incurred a penalty with our supplier.
2. When we consider adding store locations, overhead costs are one of the factors that determine how many more we are able to open and how many employees we can hire. Unfortunately, all of our new stores are currently paying 20-30% more for their electricity because Electric Choice is no longer an option. We have had to limit our new store locations as a result.

It is very discouraging to Hungry Howie's that Michigan doesn't have a program that is fair and equitable. Michigan electric customers should have a program that allows anyone to participate and to have equal opportunity.

Sincerely,

A handwritten signature in cursive script that reads "Danielle Bergeron". The signature is written in black ink and is positioned above the typed name.

Danielle Bergeron  
Controller, Hungry Howie's

Since 1941

ISO 9001:2000

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# Superior Heat Treat LLC

---

Tool & Die Specialists

March 25, 2013

Dear Director Bakka & Chairman Quakenbush,

I am writing to provide testimony in support of electric competition in the State of Michigan. Since I can't attend the energy forum today, I have asked representatives of Dillon Energy Services to relay this testimony on behalf of my company.

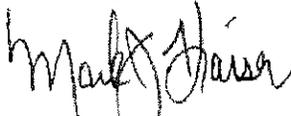
Superior Heat Treat LLC is a full service heat treating company located in Clinton Township. The company is currently in the electric Queue and we are hopeful that we will be among the first companies to enroll in electric choice as soon as we are able -- and it will be none too soon for us!

As a heat treating company which is obligated to get its electric supply from DTE Energy, we are all too aware that our competitors who are on an Electric Choice program are at an unfair advantage. How can we compete in the marketplace when our overhead is so much higher than our competition?

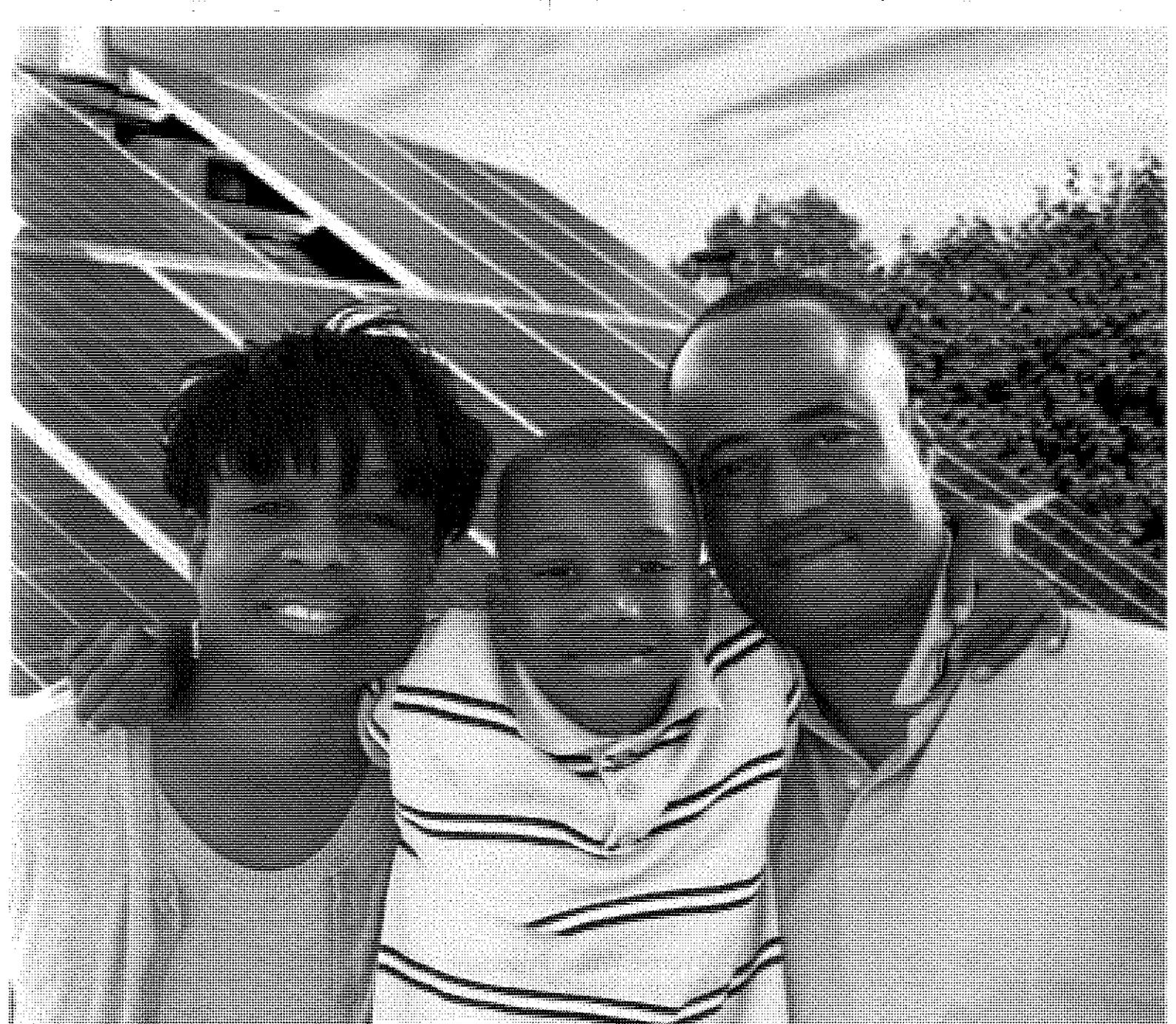
If we were on the Electric Choice program today, our company would realize savings of 16 to 22%. That's a total potential savings of more than \$19,000 annually! That savings would allow for more competitive pricing of our services that would ultimately benefit our customers as well.

We ask Governor Snyder and members of the Michigan legislature to raise the Cap on electric competition as quickly as possible.

Best regards,



Mark J. Kaiser  
Owner



Coal to Clean:  
A Case Study on Public  
Health in Michigan





Yvonne White, President  
Michigan State Conference

National Association for the Advancement of Colored People  
15400 Grand River Avenue, Floor M  
Detroit, MI 48227

<http://www.michigannaacp.org/>

## ACKNOWLEDGEMENTS

The Michigan State Conference of the National Association for the Advancement of Colored People (NAACP) would like to acknowledge the following individuals for their contributions to this report: Pamela Smith, Project Manager, NAACP Campaign to Increase Clean Energy who has been the leader and steward of the report development process from inception through finalization; Pamela J. Maxson, Ph.D., Children's Environmental Health Initiative, University of Michigan; Sandra Turner-Handy, Community Outreach Director, Michigan Environmental Council; Sheryl Weir, Michigan Resident; Donele Wilkins, President, Green Door Initiative; Jessica Yorke, Environmental Justice Coordinator, Ingham County Health Department; and also NAACP's partners on the *Coal Blooded* Report—the Indigenous Environmental Network, and the Little Village Environmental Justice Organization.

The primary data collection, analysis and results presented in this report were provided by Environmental Health & Engineering (EH&E). Research findings referenced in the introduction of this report were previously reported in greater detail in a report entitled, *Coal Blooded: Putting Profits Before People* by Adrian Wilson, University of Massachusetts at Amherst; Jacqui Patterson, NAACP; Kimberly Wasserman, LVEJO; Amanda Starbuck and Annie Sartor, Rainforest Action Network; and Judy Hatcher. The *Coal Blooded* report is available at [insert URL].

Permission to copy, disseminate, or otherwise use information from this report is granted as long as appropriate acknowledgment is given.

[Insert title] can be viewed or downloaded from the Internet at <http://www.michigannaacp.org>.

## **PRAISE FOR [INSERT TITLE OF THE REPORT]**

*"Clearly, with this influential study of adverse health effects that stem from the burning of coal, a growing mountain of evidence is being uncovered around issues of environmental sustainability and environmental justice that simply can't be ignored. The sooner we face these incontrovertible facts, the sooner we can move on to solutions that work for everyone."*

*- Keith W. Cooley, CEO, Principia, LLC*

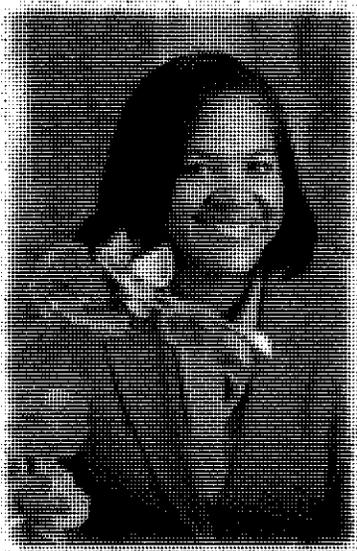
*"If we make the right choices now, Michigan will be a healthier and more productive place to live for everyone in the future. How can we afford not to?"*

*-Tina Reynolds, Health Policy Director Michigan Environmental Council*

*"Public health effects of coal-fired power plants is one of the most important reasons to shift toward more modern sources of electricity. This report demonstrates the very large objective benefits of that transition."*

*- Douglas Jester, 5 Lakes Energy*

## FOREWARD



*"TITLE" provides an opportunity for thorough deliberation of a compelling non--clinical approach to improving public health.*

As Health Officer for the Ingham County Health Department, I oversee a department that provides primary care services, community-based home visitation services, and a variety programs designed to prevent chronic disease and advance health equity. A growing body of literature identifies adverse childhood experiences that lead to life-long negative health effects. Children remain especially vulnerable to environmental and other exposures. A life-course perspective drives us to find ways to position children for healthy childhoods as a strategy to ultimately promote healthy adults. Promoting healthy individuals and communities requires adequate access to healthcare services, but equally as important, it requires attention to social and environmental benefits and protections.

Good health is not attained exclusively through robust healthcare systems. Nor is it attained solely through a focus on improving health-related behaviors. While access to healthcare and attention to healthy behaviors are important, these things do not occur in isolation from the other factors in peoples' lives. For example, access to education and employment, safe and healthy homes and communities, transportation, food and recreation are all factors that impact public health outcomes. In our *Building Healthy Communities and Environmental Justice* work, our goal is to make healthy lifestyle choices available to everyone and to make healthy behaviors a clear and easy option. We work diligently to create more equitable access to environmental benefits and protections throughout our county, because we know that inequitable access contributes to the disparities in morbidity and mortality that we observe both locally and nationally.

I thank the Michigan State Conference of the National Association for the Advancement of Colored People for releasing this analysis of air quality and public health benefits through a non-clinical intervention. The study is warranted and appropriate given the continuous disproportionate health outcomes among people of color in Michigan and the United States. The report will serve as a source of information and point of important dialogue as we consider new ways to meet the public's health needs.

Dr. Renee Canady  
Health Officer Ingham County Health Department

## **MESSAGE FROM PRESIDENT OF THE NAACP**

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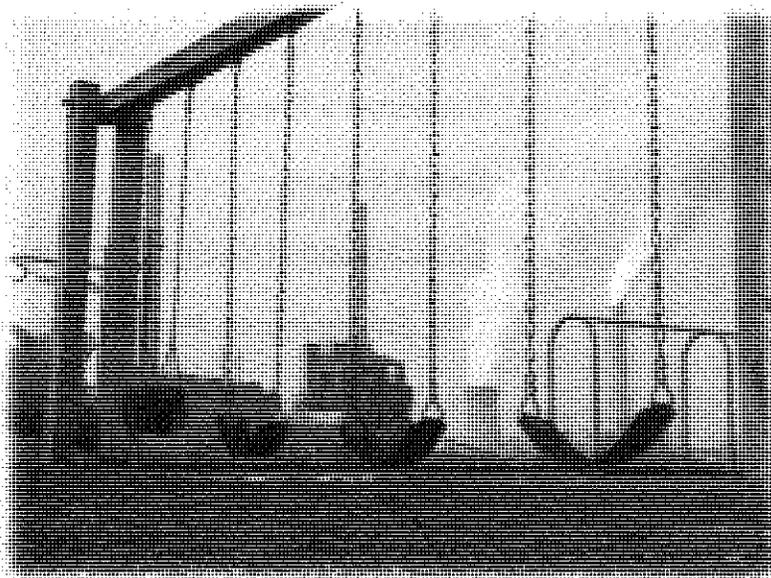
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## LIST OF ABBREVIATIONS AND ACRONYMS

BTU	British thermal unit
CMS	Consumer's Energy
DTE	Detroit Edison
EH&E	Environmental Health & Engineering, Inc.
EPA	U.S. Environmental Protection Agency
HIA	Health Impact Assessment
kwh	kilowatt hour
MATS	Mercury and Air Toxics Standards
NAACP	National Association for the Advancement of Colored People
NO <sub>x</sub>	oxides of Nitrogen
PM <sub>2.5</sub>	Particulate matter that is 2.5 micrometers or smaller in size
RPS	Renewable Portfolio Standards
SO <sub>2</sub>	Sulfur Dioxide

## INTRODUCTION

In Michigan, 200,000 people live within three miles of a coal-fired power plant owned by either Detroit Edison or Consumer's Energy. Among those living within three miles of a coal power plant, 31 percent are people of color — a figure that is 1.7 times greater than (nearly double) the proportion (18%) of people of color living in Michigan overall. Coal power plants tend to be disproportionately



located in low-income communities and communities of color,<sup>1</sup> and they are single-handedly responsible for a large proportion of toxic emissions that produce negative health outcomes for these and other communities in the United States.

In *Coal Blooded: Putting Profits Before People*, researchers presented the findings of the systematic study of 378 coal-fired power plants in the United States. In that study, each plant was assigned an environmental justice performance (EJP) 'score,' a relative 'rank,' and a 'grade' based on how it affects low-income communities and communities of color. The score assigned to each plant, and each company, is based on five factors: emissions of sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>); the total population living within three miles of the plant(s); and the median income and percentage of people of color among the total population living within three miles of the plant(s).

In the *Coal Blooded* report, 75 plants earned an environmental justice performance grade of "F." These 75 'failing plants' produced only 8 percent of U.S. electricity in 2005 (375,552 GWh), but they were responsible for 14% of SO<sub>2</sub> emissions and 13% of all

NO<sub>x</sub> emissions from all U.S. power plants.<sup>2</sup> These 75 failing plants were found to have a considerable and disproportionate impact on people of color and low-income people. *A total of four million people live within three miles of these 75 failing plants, and the average per capita income of these four million people is just \$17,500 (or 25% lower than state average). Out of these four million people, nearly 53% are people of color.*

Out of the 378 coal-fired power plants examined for this study, researchers for the Coal Blooded report determined that 150 plants throughout the United States underperforming, earning an EJP score of D+ or worse. **Michigan is host to 8 of the 150 Worst Environmental Justice Offending Plants.** Detroit, Michigan is the unfortunate host to the 7th most offensive coal fired power plant in the United States, known as the River Rouge Power Plant.

City	Plant Name	3-mile Average Income	State Income Percentage	3-mile P.O.C. population	Grade
River Rouge	River Rouge	\$13,037	58.8%	65.3%	F
Lansing	Eckert	\$17,959	81.0%	39.2%	F
Muskegon	B C Cobb	\$15,161	68.4%	37.6%	F
Monroe	Monroe	\$19,202	86.6%	15.8%	F
Trenton	Trenton Channel	\$29,078	131.2%	5.9%	F
Marquette	Presque Isle	\$16,374	73.9%	5.6%	F
Lansing	Erickson	\$22,757	102.7%	34.0%	D+
Essexville	Karn/Weadock	\$20,962	94.6%	6.7%	D

Figure: Michigan's failing coal fired plants

An implementation of new emission limits for existing coal plants and increased reliance on wind, solar, and hydropower as sources of electricity will lower emissions of air pollutants, compared with the current portfolio of electricity generation in the United States. Lower emissions are expected to result in decreased levels of exposure to air pollution, which would logically yield fewer air pollution-related health effects, particularly in the communities that are disproportionately affected.

To characterize this chain of events more fully, the Michigan State Conference of the National Association for the Advancement of Colored People (NAACP) commissioned

Environmental Health & Engineering, Inc. (EH&E) to conduct an analysis of the public health benefits associated with an increase in the proportion of electricity generated from renewable energy sources in Michigan, with a focus on communities of color.<sup>4</sup>

This report provides an empirical discussion of the effects of burning coal in power plants. The key point is to ensure that Michigan's renewable energy portfolio reaches 25% by 2025. With informed responses to energy policies aimed to affect public health and the environment, we can ensure that we have the power we need, the jobs to sustain our livelihoods, and moreover, preservation of health and wellbeing—in all communities.

## SUMMARY

According to the National Research Council, there are enough renewable energy resources in the U.S. to meet a significant portion of the nation's electricity needs.<sup>3</sup> The transition from fossil fuels to wind, solar, and hydropower for generation of electricity is driven by several forces: new rules authorized under the Clean Air Act; renewable portfolio standards (RPS) adopted by states; advances in technology; and financial incentives for renewable sources of energy.

New Clean Air Act rules such as the Mercury and Air Toxics Standards (MATS) published in 2012 require reduction of air pollutants — primary particulate matter, acid gases, mercury, etc. — released from existing coal-fired power plants throughout the U.S.<sup>4</sup> At the same time, more states are generating electricity from renewable sources of power. For instance, thirty (30) states and the District of Columbia had enforceable renewable portfolio standards as of January 2012.<sup>5</sup>

The purpose of this report is to describe the public health benefits of improved air quality associated with a reduction in combustion of coal to generate electricity in Michigan, focusing on communities of color.

As the nation *increases* its usage of wind, solar, and hydropower as sources of electricity, it will *decrease* emissions of air pollutants compared with fossil fuel electricity. Lower emissions would then result in decreased levels of exposure to air pollution, which in turn would yield fewer air pollution-related health effects. To characterize this chain of events more fully, the Michigan State Conference of the National Association for the Advancement of Colored People (NAACP) commissioned Environmental Health & Engineering, Inc. (EH&E) to prepare a report on the public health benefits associated with an increase in the proportion of electricity generated from renewable energy sources in Michigan, with a focus on communities of color.<sup>6</sup>

This report describes the EH&E analysis of public health benefits expected to result from substitution of coal as a fuel to generate electricity with renewable sources of electric power. EH&E researchers applied a standard methodology to compare public health impacts of air pollutant emissions from coal-fired power plants in Michigan for a baseline case (2011) and future case (2025) emissions scenario, referred to as Business as Usual and Cleaner Energy Future respectively. The Business as Usual case was developed from coal consumption and emissions data reported by the U.S. Energy Information Administration and Environmental Protection Agency (EPA). Emissions for the Cleaner Energy Future case reflect compliance with the Clean Air Act Mercury and Air Toxics Standards (MATS) for existing plants and a renewable portfolio standard that would require wind, solar, biomass and hydropower to account for 25% of electricity sales in Michigan by the year 2025. The scope of our analysis includes fine particle (PM<sub>2.5</sub>) concentrations attributable to the coal-fired power plants in Michigan owned by Detroit Edison (DTE) and Consumers Energy (CMS). These two utilities produce 73% of the energy in the state.

This case study of power generation in Michigan finds that implementing the impending Clean Air Act rules and advances in renewable portfolio standards would provide substantial public health benefits for communities of color, low income communities, and the general population. The major conclusions of the analysis are as follows:

Reduced air pollutant emissions from coal-fired power plants and increased reliance on renewable sources of energy forecasted for 2025 are expected to result in substantial reduction of health effects associated with Business as Usual for coal-fired power plants in Michigan.

The health benefits include over 800 premature deaths and 322,000 asthma attacks in the U.S. annually. These benefits are distributed across Michigan, Ohio, Pennsylvania, New York and other states of the Midwest and Mid-Atlantic regions.

Communities of color are disproportionately over-represented among those with negative health outcomes associated with the Business as Usual case and therefore stand to benefit more as air pollutants emissions from electricity sources are reduced.

For example, communities of color in Michigan represent only 18% of people with asthma in the state, but were found to account for 75% of the Business as Usual case emergency room visits for asthma. Communities of color were also estimated to receive the majority (76%) of the public health benefits for emergency room visits for asthma in the Cleaner Energy Future scenario.

The emission rates and portfolio of energy sources for the Cleaner Energy Future case would reduce the value of the annual health-related damages associated with Michigan power plants by 83%.

The value of public health damages for the Business as Usual case was estimated to be \$1.3 billion annually. In comparison, remaining damages associated with the Cleaner Energy Future scenario were estimated to be \$220 million per year.

## BACKGROUND

The United States has produced energy by burning coal since the 1800s.<sup>7</sup> The burning of this carbon-rich mineral accounts for 42% of all electricity produced in the United States and 66% of the electricity generated in Michigan.<sup>8</sup> In 2009, Michigan's total use of this fossil fuel to produce electricity amounted to 35 million tons, all of which was imported from out of state.<sup>9</sup>

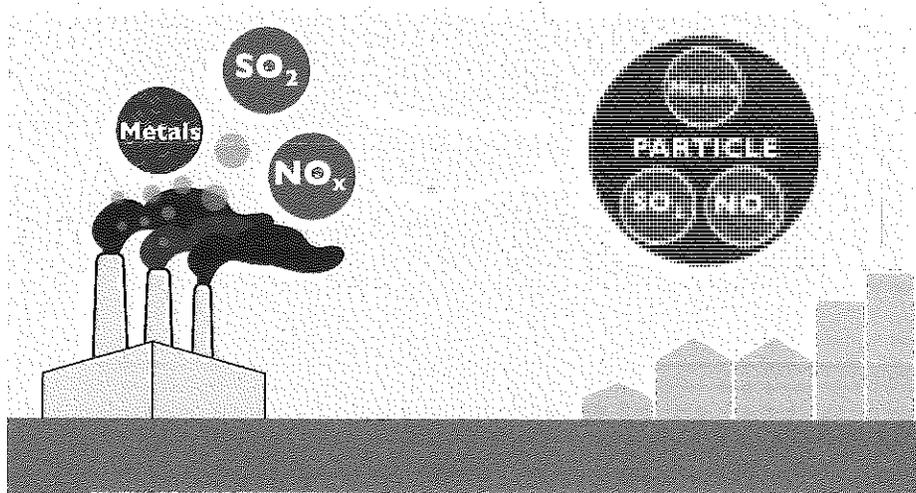
Coal is formed from fossilized plant life that is subjected to high pressure and heat over millions of years. As coal forms, it incorporates impurities from the surrounding soil and sediment. These impurities include sulfur and hazardous elements such as mercury, arsenic,

*Emissions from coal combustion are a major source of fine particle air pollution throughout the United States. A recent study by the US Environmental Protection Agency indicated that coal combustion accounts for at least one-third of fine particulate matter in Detroit.*

Duvell RM et al 2012, Determining spatial variability of PM25 source impacts across Detroit, MI. *Atmospheric Environment*, 47:491-498.

nitrogen oxide (NO<sub>x</sub>) are released to the atmosphere where they combine with emissions from other sources to form tiny particles (see Figure 1).<sup>10</sup> Coal combustion is also the source of 35% of carbon dioxide (CO<sub>2</sub>) emissions in the United States.<sup>11</sup>

The microscopic particles produced by



*Figure 1. Emissions from coal-fired power plants form microscopic particles composed of heavy metals, sulfur and other impurities in coal.*

lead, and nickel. When coal is burned, the metal, sulfur dioxide (SO<sub>2</sub>), and

emissions from coal-fired power plants are part of a class of air pollutants

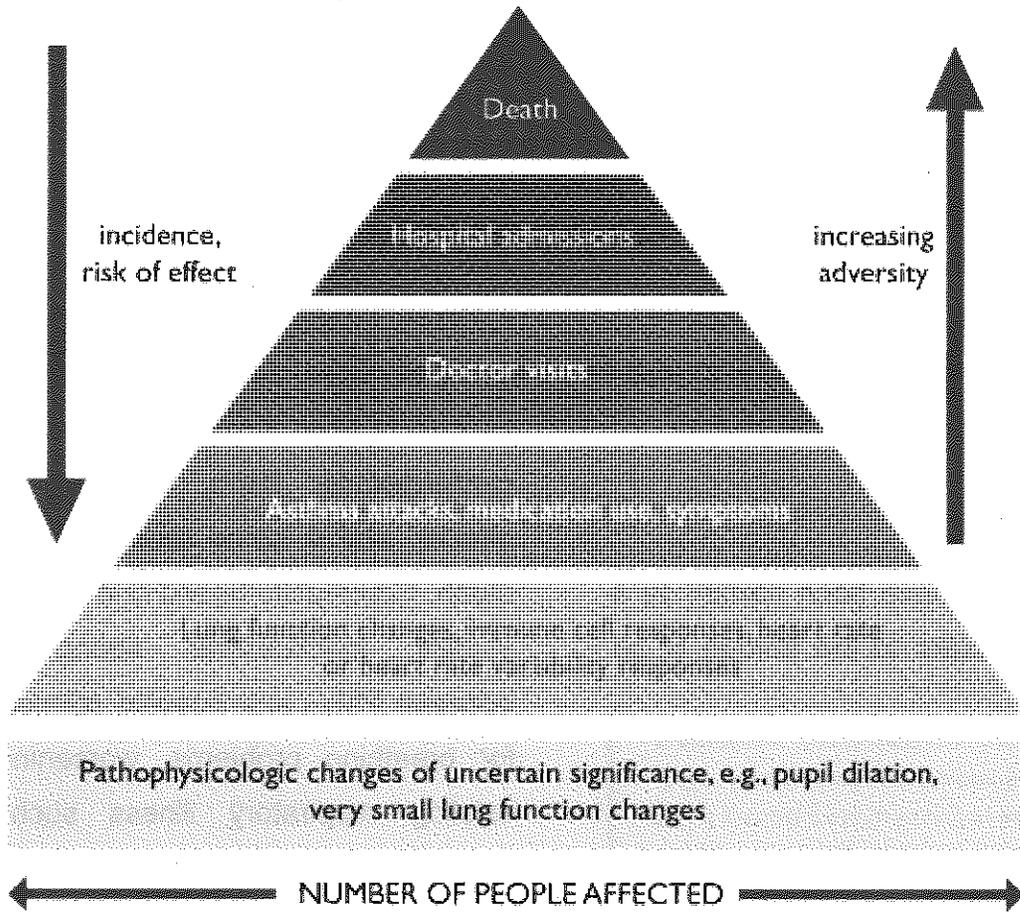
known as fine particulate matter (abbreviated as PM<sub>2.5</sub>). Fine particulate matter is defined as aerosols that are about 20 times smaller than the width of a human hair. Particles of this size can penetrate deep into the lung and initiate a series of negative effects on the human body. Fine particles also contribute to acid rain and limit visibility, most notably in national parks and other pristine areas throughout the United States.

These particles have been named as a leading contributor to the burden of air

*Leading scientific organizations, independent researchers, and medical professionals agree that exposure to fine particles increases the risk of early death, heart attack, stroke, asthma attack and other less severe outcomes.*

pollution on health by the World Health Organization, the National Academy of Sciences, the American Lung Association, the American Heart Association, American Thoracic Society, as well as other U.S. health agencies, and leading scientists.<sup>12</sup> When people

inhale these pollutants, some of these particles deposit along the respiratory tract, while others penetrate deeply into the lung where they can enter the bloodstream. Along the way, the particles irritate tissue, cause inflammation, worsen existing breathing illnesses and damage circulatory systems. Inhalation of these tiny particles over both short and long periods of time is recognized to cause cardiovascular harm, including heart attacks, and in some cases, premature death. Community-based and laboratory studies demonstrate strong links between PM<sub>2.5</sub> and hospital admissions for breathing problems, worsening of existing respiratory illness such as asthma, elevated risks of reproductive, developmental, and cancer-causing outcomes, as well as other effects such as irregular heartbeat and pulmonary and systemic inflammation (Figure 2).



*Figure 2. Fine particle air pollution is a cause of inflammation and oxidative stress that is associated with a spectrum of respiratory and cardiovascular illness. Adapted from EPA.*

## METHODOLOGY

To estimate the public health benefits of 1) reducing air pollution from coal-fired power plants and 2) increasing reliance on renewable sources of energy, EH&E researchers implemented a standard Health Impact Assessment (HIA). As Figure 3 illustrates, this assessment evaluates the extent to which increased reliance on wind, solar, and hydropower as sources of electricity—as compared with fossil fuel electricity—will lower *emissions* of air pollutants. Lowering these emissions will result in decreased levels of *exposure* to air pollution, which in turn is anticipated to *reduce* the negative health effects that are linked to air pollution.

The HIA methodology estimates the number of negative health outcomes that are avoided as a result of the energy sector's compliance with the Clean Air Act and its implementation of a renewable portfolio standard. The term "health impact assessment" refers to a widely accepted tool used to estimate public health impacts of air

pollutants.<sup>13</sup> An HIA considers the baseline health status of the population,

as well as pollutant concentrations in ambient air, concentration-response functions for air pollutant-related health outcomes, and the size of the exposed population. Details of the HIA methodology used for this analysis are described in a technical report from EH&E that was issued in 2011.<sup>14</sup> A more general description of HIA as a tool for evaluation of proposed air pollution regulations is available from the National Research Council.<sup>15</sup>

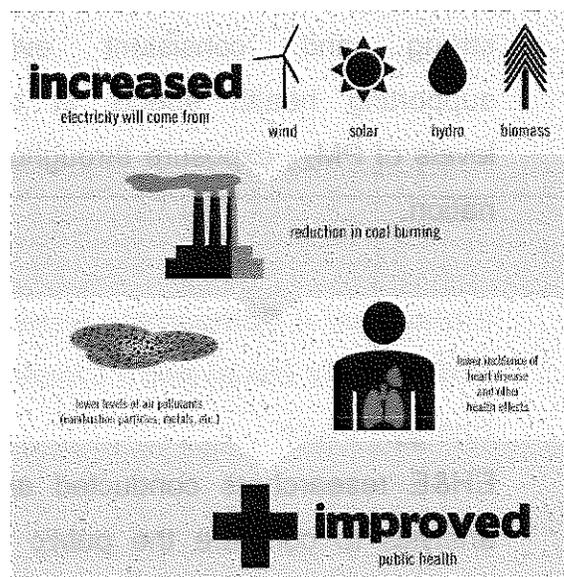


Figure 3. Illustration of the relationships among Clean Air Act rules, renewable portfolio standards, coal combustion, air quality and public health.

For this study of the emission impacts from Michigan's coal-fired electric generating units, EH&E researchers began by determining which pollutants would be incorporated into the analysis. Based on reviews of past air pollution benefit-cost analyses conducted by the EPA, researchers concluded that PM<sub>2.5</sub> would contribute to a significant portion of the total health impacts associated with emissions from the facilities considered in this analysis. Therefore, estimates focused on pollutants that would influence ambient concentrations of PM<sub>2.5</sub>. As noted previously, there is strong and consistent evidence supporting health effects at current levels of PM<sub>2.5</sub> exposure throughout the nation.

*Emissions: A Comparison Between Business As Usual and a Cleaner Energy Future*

EH&E researchers conducted an HIA analysis to compare the public health impacts of air pollutant emissions from coal-fired power plants in Michigan for a baseline case (2011) and future case (2025) emissions scenario, referred to

as Business as Usual and Cleaner Energy Future, respectively. The Business as Usual case was developed from coal consumption and emissions data reported by the U.S. Energy Information Administration and the Environmental Protection Agency (EPA). Emissions for the future case reflect compliance with the Clean Air Act and a renewable portfolio standard that would require renewable sources of

Total Air Pollutant Emissions	
Business As Usual	300,000 tons
Cleaner Air Future	70,000 tons

energy to account for 25% of electricity sales in Michigan.

The Business As Usual case for our analysis is reflective of the PM<sub>2.5</sub>-related air pollutant emissions generated in 2011 from eleven coal-fired power plants in Michigan owned by Detroit Edison (DTE) or Consumers Energy (CMS). These two utilities alone produced 73% of the energy in Michigan

for 2011. Power plant utilization for the Business as Usual case was derived from information reported by DTE and CMS to the U.S. Energy Information Administration.<sup>16</sup> Air pollutant emission rates were calculated from emission factors for primary PM<sub>2.5</sub> reported by EPA and emissions of SO<sub>2</sub> and NO<sub>x</sub> reported in the EPA Clean Air Markets Database.<sup>17</sup>

The Cleaner Energy Future case for our analysis is a scenario in which power generation meets projected future demand and complies with the Clean Air Act and a renewable portfolio standard. This scenario also minimizes the number of the plants that would require capital upgrades to meet new Clean Air Act regulations. The standard for the Cleaner Energy Future scenario would require 25% of electricity sales in Michigan to be generated from wind, solar, biomass, or hydropower by the year 2025.<sup>18</sup> The future case emission rate for sulfur dioxide was set to 0.2 pounds per million BTU to comply with the MATS requirements. In this scenario, the effect is to close plants that would not be needed due to the increase in sources of renewable

energy, to maximize utilization of the remaining plants, and to meet emission rates of sulfur dioxide and other acid gases required by MATS.<sup>19</sup> It is understood that the future scenario selected for our analysis represents one of many by which Michigan could accomplish all goals stated above. Though the methods for each scenario vary, this case study is representative of the overall public health and economic benefits that would be observed with the changes in energy reliance in each scenario.

Under the rules set by the MATS and a renewable portfolio standard in Michigan, it is projected that the state will realize a 77% reduction in total emissions from coal-fired power plants. Figure 4 shows the 11 DTE and CMS coal-fired power plants in Michigan and their combined emissions of primary PM<sub>2.5</sub>, sulfur dioxide and oxides of nitrogen for the Business as Usual and Cleaner Air Future scenarios. The output of electricity from seven of the coal-fired power plants is projected to be replaced by renewable sources of electricity generation, resulting in an overall reduction of 211,000 total tons of

primary PM<sub>2.5</sub>, sulfur dioxide (SO<sub>2</sub>), and oxides of nitrogen (NO<sub>x</sub>). Other plants are projected to have modest decreases or increases in utilization compared to the Business as Usual case and a decrease of 170,000 tons of SO<sub>2</sub> to comply with the MATS requirements. Overall, a 90% decrease in carbon dioxide emissions is also anticipated with these changes.

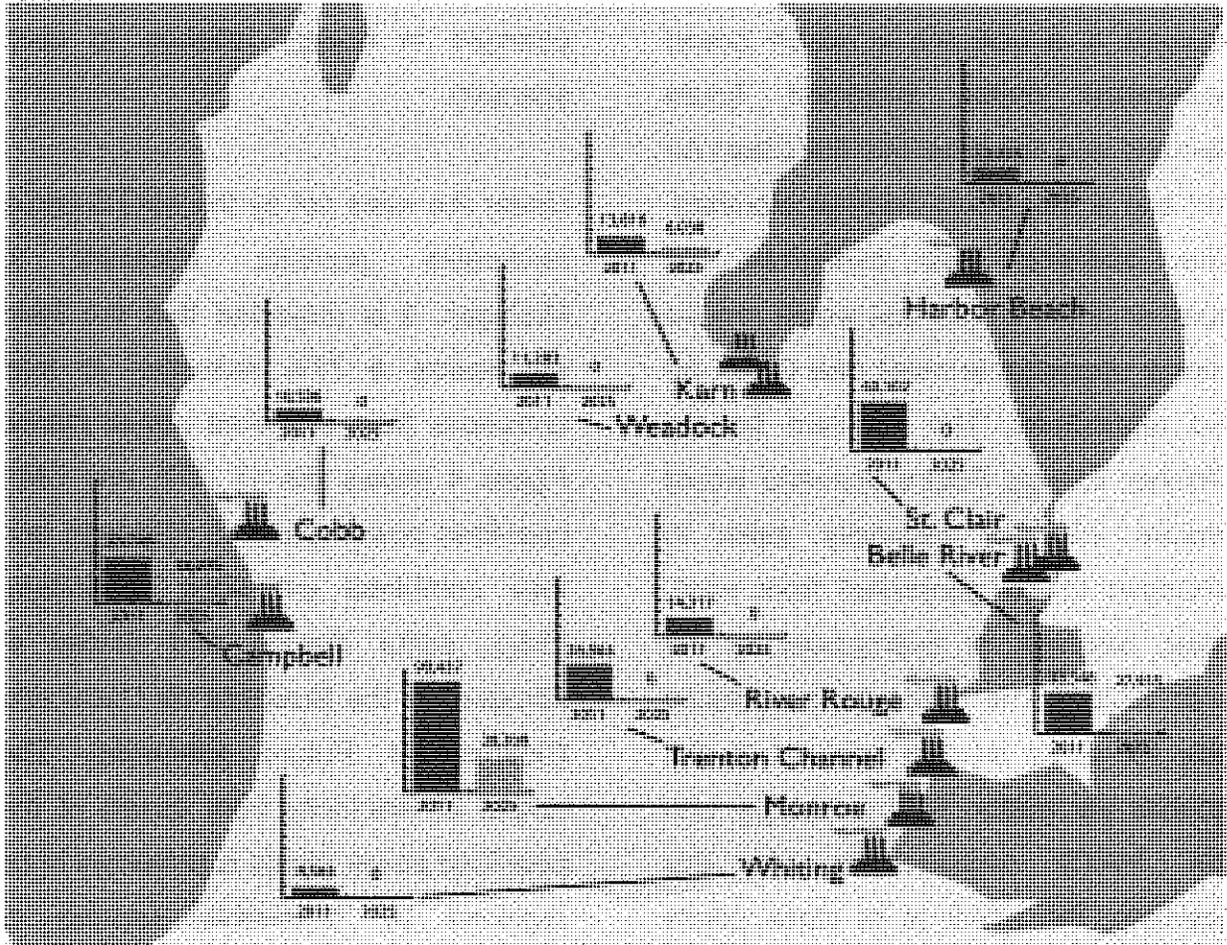
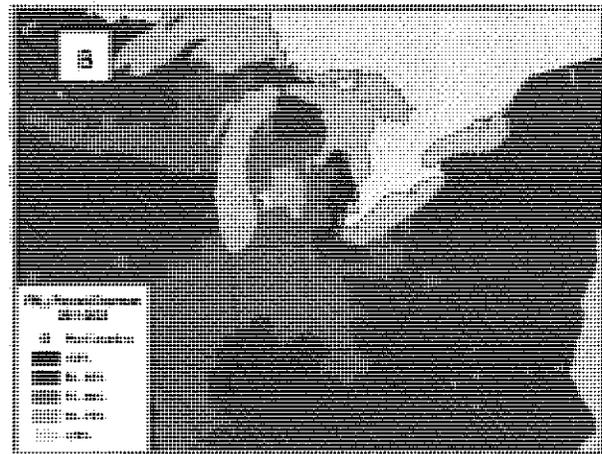


Figure 4. Combined emissions of primary PM<sub>2.5</sub>, sulfur dioxide and oxides of nitrogen from DTE and CMS coal-fired power plants for the Business as Usual (2011) and Cleaner Air Future (2025) cases.

EH&E researchers used EPA's county-resolution Source-Receptor Matrix to estimate annual average fine particle concentrations resulting from the PM<sub>2.5</sub>, SO<sub>2</sub>, and NO<sub>x</sub> emissions for the Business as Usual (2011) and Cleaner Air Future (2025) scenarios. The county-level changes in PM<sub>2.5</sub> exposure between the two cases constitute the air quality impacts of emissions from the 11 coal-fired plants considered for this analysis.

As expected, the greatest air quality impacts occur in Michigan and in counties of surrounding states to the east. The Source-Receptor Matrix results for the Business as Usual case PM<sub>2.5</sub> concentrations are shown for counties of Michigan and surrounding states in Figure 5, Panel A. The Cleaner Energy Future emissions scenario is projected to result in reductions of Michigan power plant-related PM<sub>2.5</sub> by as much as 60%, with the largest benefits expected for eastern Michigan and Great Lakes states to the east (Figure 5, Panel B).



**Figure 5.** Business as Usual case fine particle impacts of Michigan coal-fired power plant emissions (Panel A) and percentage reduction in those impacts (Panel B) anticipated to result from a reduced reliance on coal for generation of electricity in Michigan by 2025.

Within Michigan, the greatest air quality impacts for the Business as Usual case occur for counties that contain the coal-fired power plants and for counties throughout the eastern parts of the state (Figure 6, Panel A). The largest air quality benefits from the Cleaner Energy Future case are expected to occur in the eastern parts of Michigan as well (Figure 6, Panel B).

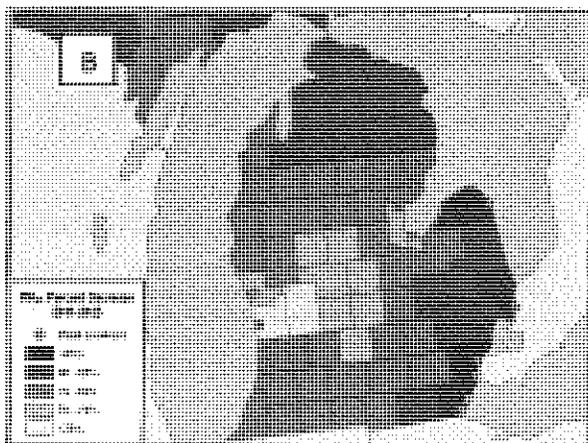
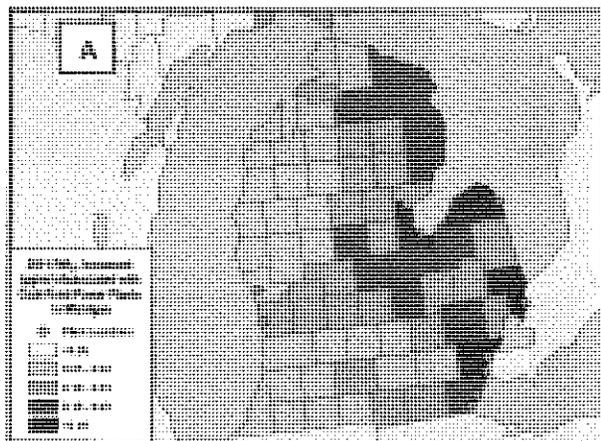


Figure 6. Business as Usual case fine particle impacts of Michigan coal-fired power plant emissions in counties of Michigan (Panel A) and the corresponding percentage reduction in those impacts (Panel B) anticipated to result from a reduced reliance on coal for generation of electricity in Michigan by 2025.

### Public Health

Health impact assessments of the type EH&E researchers conducted for the 11 selected electricity facilities in Michigan combine information on changes in air pollutant concentrations, the relationship between air pollutant concentrations and the risk of a negative health outcome, the Business as Usual incidence of each health outcome, and the size of the population exposed to the air pollutants.

EH&E's analysis considered the following PM<sub>2.5</sub>-related health outcomes: premature mortality, hospital admissions for cardiovascular and respiratory disease, emergency room visits for asthma, asthma exacerbation, chronic bronchitis, and minor restricted activity days (MRADs). The annual number of cases of each health outcome associated with air pollutant emissions from Michigan's coal-fired power plants was estimated for each county in the continental United States. By conducting the analysis at the resolution of counties rather than a larger geographic area (e.g., state), EH&E researchers maintained spatial relationships among population sizes, baseline incidence of disease, and air quality important for

determining a reasonable estimate of public health impacts associated with pollutant emissions from the 11 modeled facilities.

*Public health benefits of the reduced coal combustion were estimated from the projected reduction of air pollutant emissions from coal fired power plants, the corresponding decrease in PM<sub>2.5</sub> exposure, baseline rates of PM<sub>2.5</sub> related health effects for the general population and communities of color and the number of people exposed.*

### *Poor Communities and Communities of Color*

Environmental health research has indicated that the burden of air quality impacts resulting from emissions by local sources may be carried disproportionately by poor communities and communities of color. In one study, nearly 50% of the risks for premature death caused by power plant-related exposures were borne by the 25% of the population with less than high school education.<sup>20</sup> This result reflected both higher background rates of mortality and higher relative risks for air pollution related to mortality for individuals with lower education. In addition, lower-income people and people of color have been found to be disproportionately exposed to air pollution because of their proximity to point and mobile sources of emissions.<sup>21</sup> Low-income populations also are more likely to lack access to health care and to live in conditions

associated with asthma exacerbations.<sup>22</sup>

Susceptibility to the negative effects of air pollution may also be the result of different baseline rates of air pollution or different responses to various levels of exposure.<sup>23</sup>

For these reasons, EH&E researchers conducted a refined HIA to explore the distribution of Michigan coal-fired power plant air pollution impacts on public health for communities of color in the state. Baseline rates for each public health outcome were developed for the total population and for communities of color within each county in Michigan. The differences in baseline rates used in this analysis for each population allowed the public health benefits between the Business As Usual (2011) and Cleaner Energy Future (2025) cases to be determined. The inputs to this analysis on baseline prevalence of health outcomes associated with PM<sub>2.5</sub>

exposure for the general population and communities of color are provided in the endnotes.<sup>24</sup>

### *Economic Valuation*

EH&E researchers also estimated the economic impact of public health conditions associated with the Business as Usual scenario in Michigan. For each health outcome, an economic value per case was assigned and used to calculate the annual estimated economic value for the Business as Usual and Cleaner Energy Future scenarios. The values that were selected for this analysis were used most recently in the EPA Regulatory Impact Analysis for the Proposed Federal Transport Rule and described in the EPA BenMAP Environmental Mapping and Regulatory Analysis Program.<sup>25,26</sup> Details of the valuation methodology are provided in our prior technical report on assessment of public health damages associated with air pollutant emissions from coal-fired power plants in Michigan.<sup>27</sup>

# RESULTS

## General Population

This public health impact analysis indicates significant health benefits would be observed in both Michigan and the United States in association with reduced in air pollutant emissions from the coal-fired power plants and increased renewable energy sources in Michigan. The estimates of the annual health-related impacts in the U.S. are summarized in Figure 7. In the Cleaner Energy Future scenario, 820 premature deaths would be avoided in the U.S., including 130 in Michigan, as compared with the Business As Usual case. Additionally, the analysis found that as a result of reduced emissions from coal combustion in 2025, there would be 50,000 fewer asthma exacerbations in Michigan and 320,000 for the U.S.

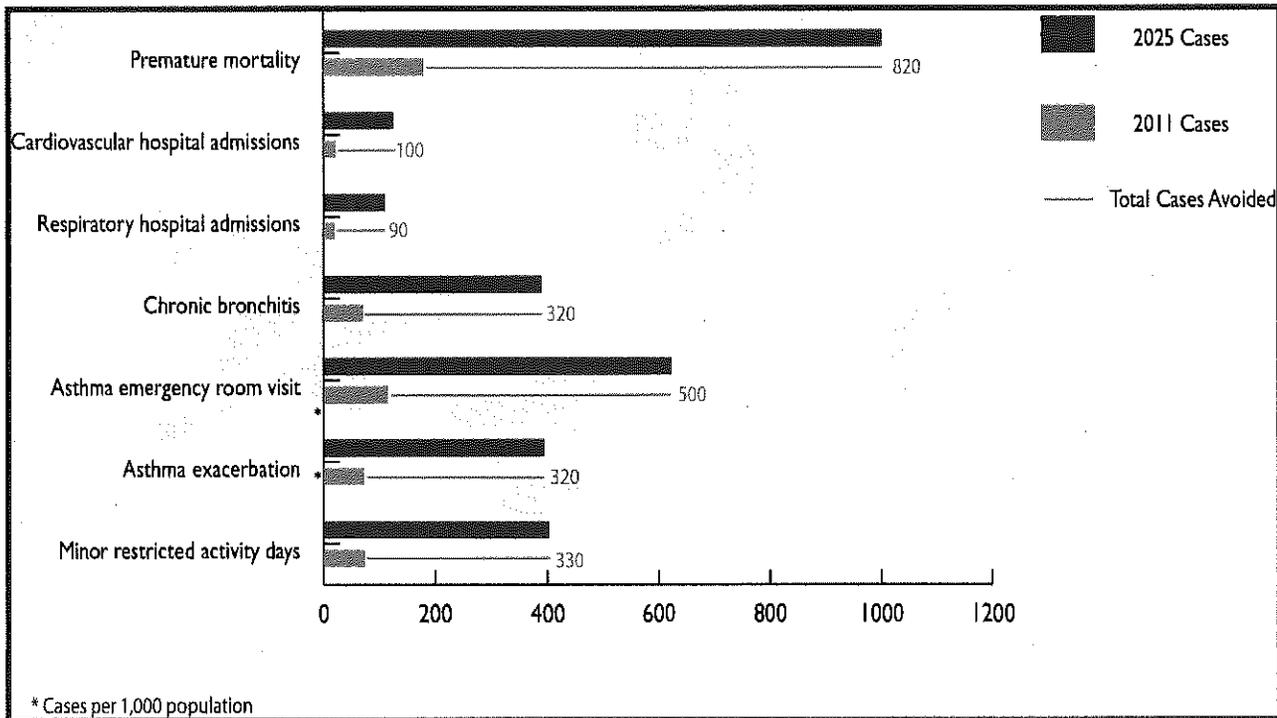
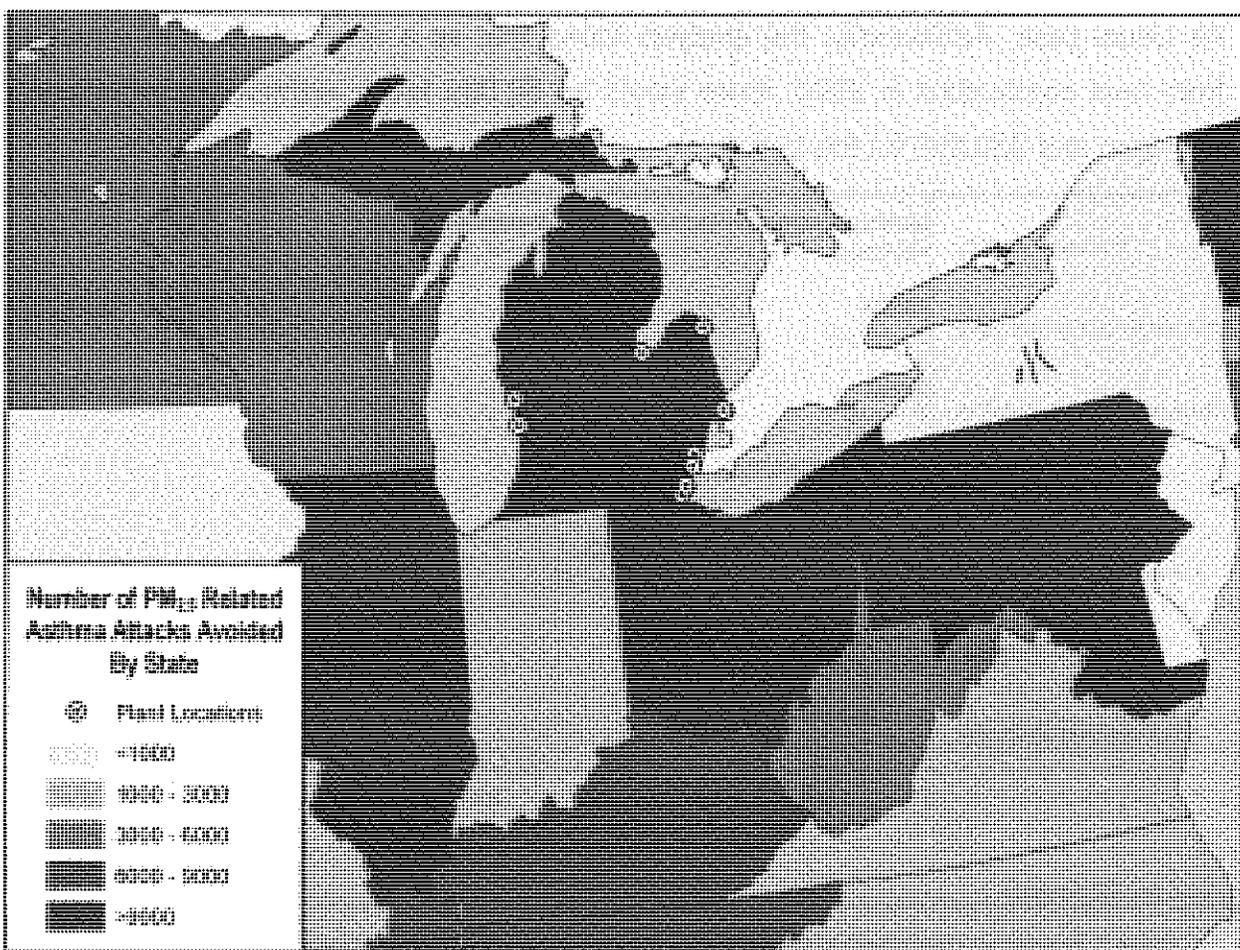
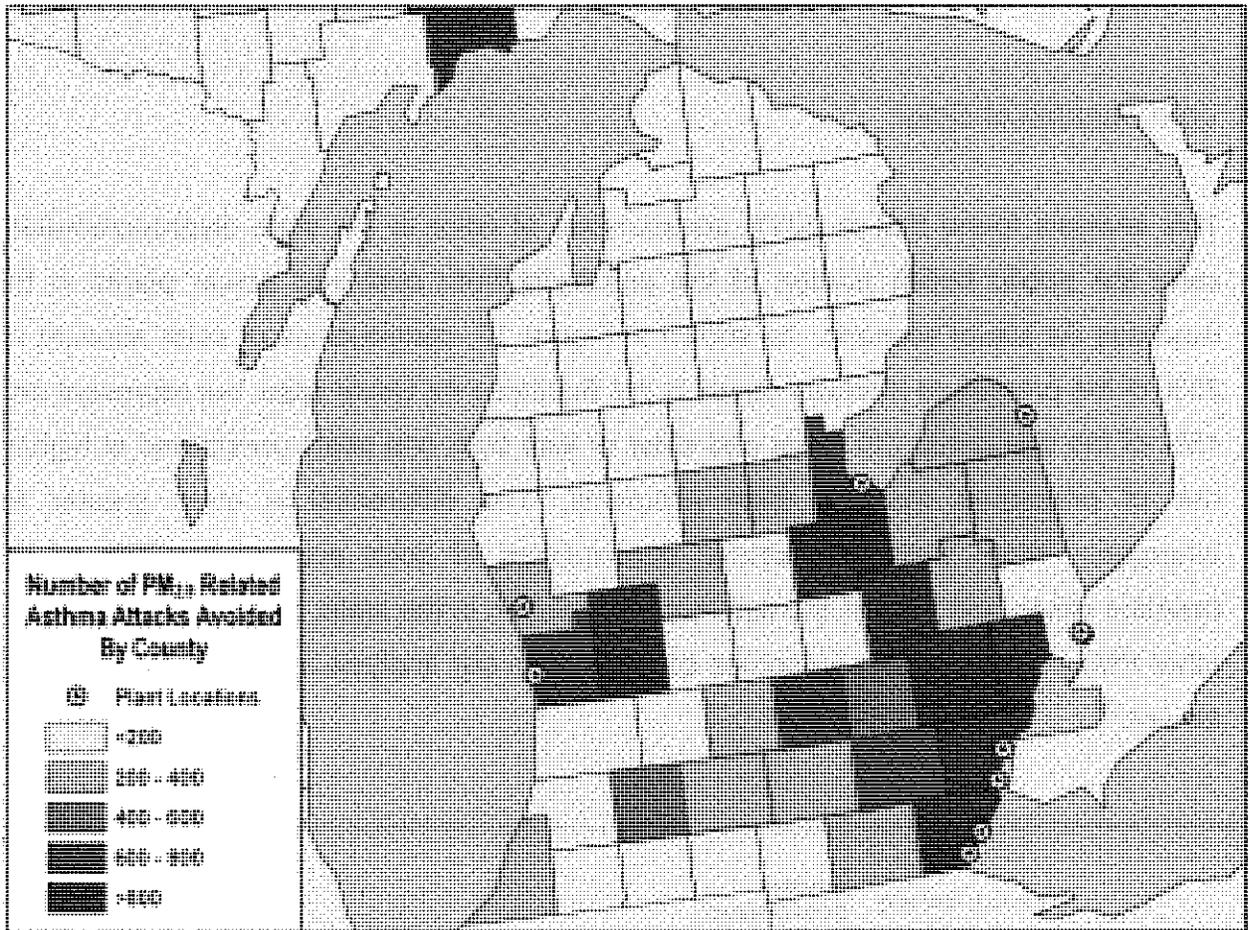


Figure 7. Business As Usual case and Cleaner Energy Future case annual mortality and morbidity impacts associated with fine particulate air pollutant emissions from coal-fired electricity generating units in Michigan. Orange line and value represent the number of cases that would be avoided in the Cleaner Energy Future scenario.

The projected public health benefits of reducing coal combustion in 2025 would extend from Michigan into Ohio, Pennsylvania, New York and other states of the Midwest and Northeast regions (Figure 8). Similarly, the estimated public health benefits in Michigan are distributed across the state; as illustrated by the predicted distribution of countywide asthma attacks shown in Figure 9. The greatest benefits in Michigan are estimated for counties that host power plants, in which the reduction of coal combustion would be greatest in the Cleaner Energy Future scenario. Comparatively large public health benefits are also expected for counties that contain the largest metropolitan areas in the state: Detroit, Grand Rapids, Lansing, Flint and Ann Arbor.



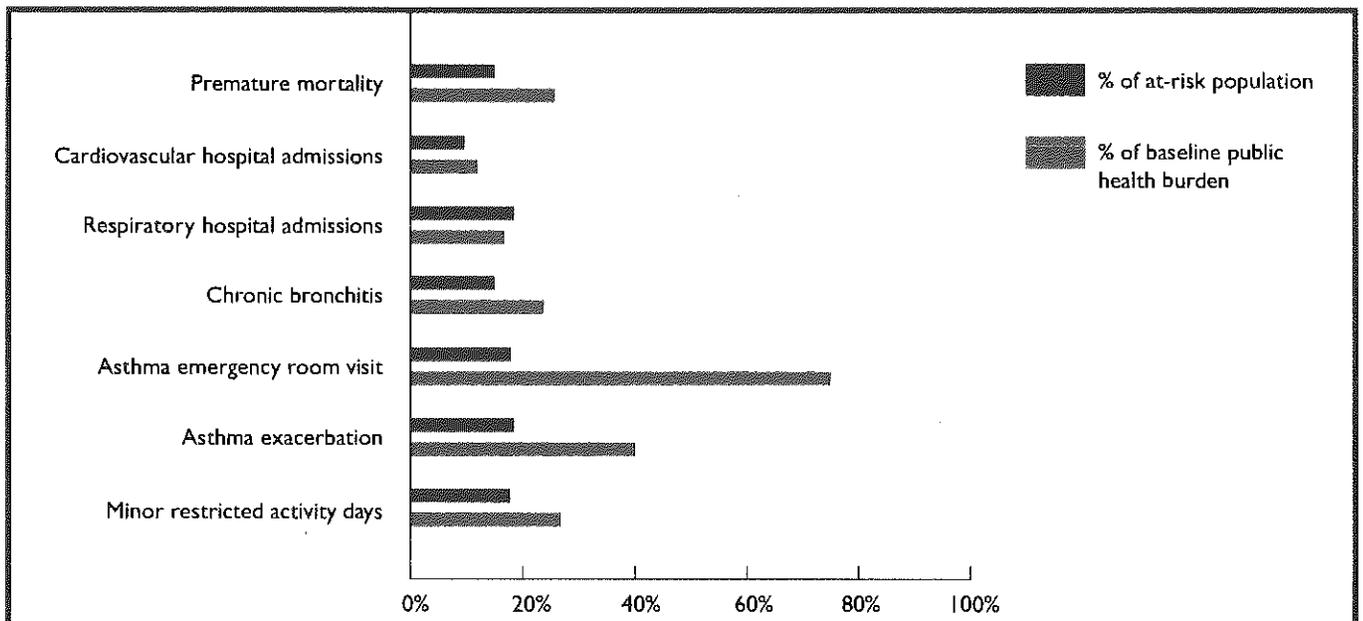
*Figure 8. Annual number of asthma attacks estimated to be avoided by state as a result of reduced emissions from coal burning to generate electricity in Michigan by 2025.*



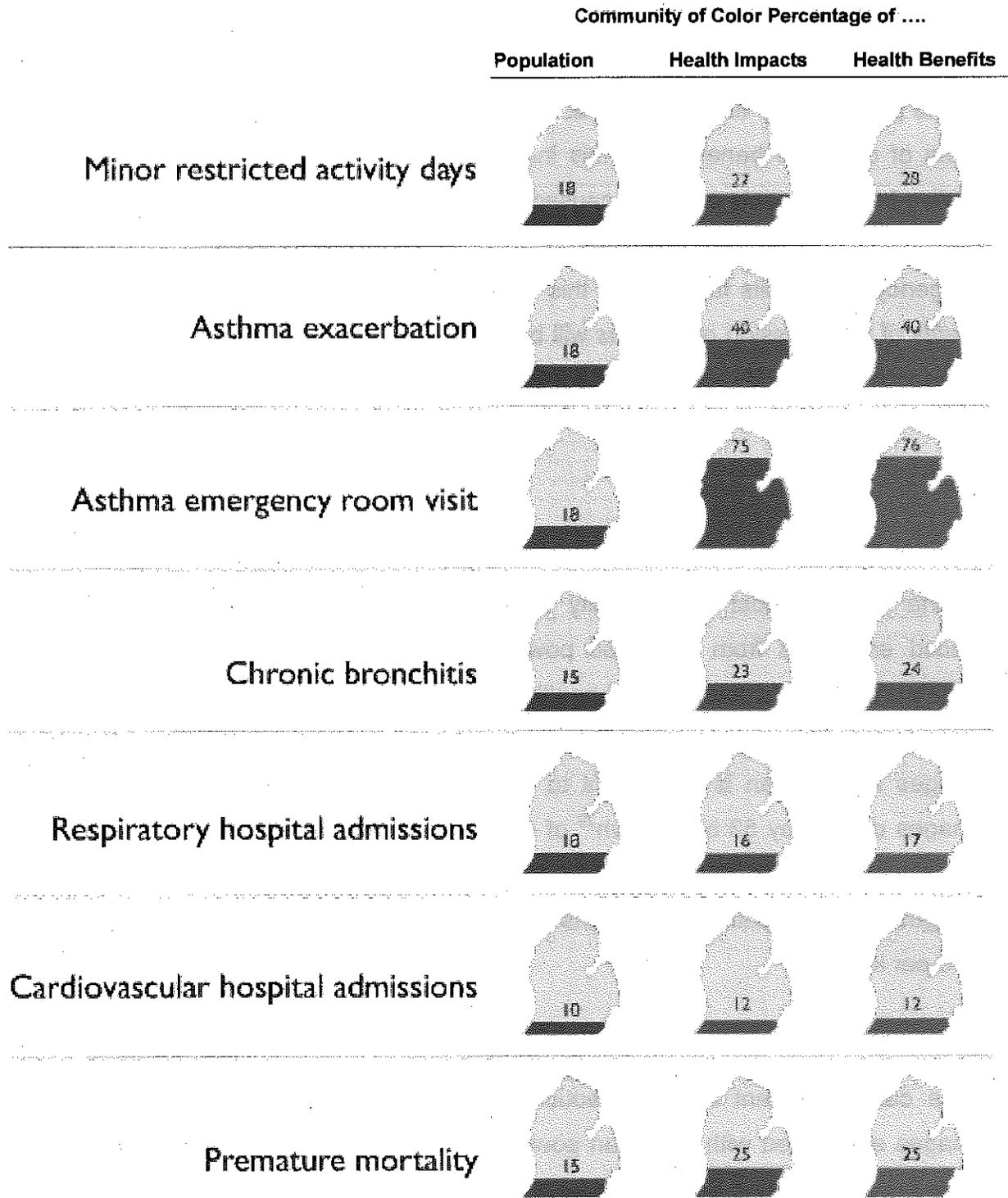
**Figure 9.** Annual number of asthma attacks estimated to be avoided in Michigan counties as a result of reduced emissions from coal burned to generate electricity in Michigan by 2025.

## Communities of Color

This analysis found that in 2011, communities of color in the state disproportionately carry the public health burden of the pollutants from coal-fired power plants in the Business As Usual scenario. As shown in Figure 10, communities of color account for 25% of the premature mortality cases in the Business As Usual case, but represent only 15% of the age group (30 years and older or less than one year) considered at highest risk of premature mortality from pollutants. The differential is even greater for emergency room visits for asthma: communities of color account for 75% of the baseline cases and 18% of the asthmatic population in the state. Similar findings for the other PM<sub>2.5</sub>-related health outcomes considered in our analysis are shown in the figure as well.<sup>28</sup>



**Figure 10.** As shown in this figure, the public health burden of the Business As Usual case emissions was found to be disproportionately borne by communities of color in Michigan. The blue bars indicate the fraction of the Michigan population represented by communities of color, and the grey bars show the proportion of the Business as Usual case public health impacts borne by those communities. Consider emergency room visits for asthma as an example: people of color represent 18% of the asthmatic population in Michigan, but account for 75% of the Business as Usual case emergency room visits for asthma.



**Figure 11.** Communities of color in MI were found to be burdened with a disproportionate share of PM<sub>2.5</sub>-related health impacts, and therefore stand to benefit more as electricity sources are cleaned up. The blue images show the proportion of the Business As Usual case public health impacts borne by those communities. The proportion of the public health benefits of reduced emissions received by communities of color is shown in green. Consider emergency room visits for asthma as an example: people of color represent 18% of the asthmatic population in Michigan, but account for 75% of the Business As Usual case emergency room visits for asthma, and are estimated to receive 76% of the public health benefits of the emission reductions.

This study found that the Cleaner Energy Future scenario will yield public health benefits for communities of color that are proportional to their share of the public health impacts produced by the Business as Usual scenario (see Figure 11). In other words, people of color will benefit from this initiative at a rate proportional to their share of negative health impacts currently caused by coal-burning pollutants. For example, while communities of color are estimated to bear 75% of the Business As Usual case emergency room visits for asthma, this study also shows that 76% of the public health *benefits* of the emission *reductions* will be in communities of color. Similar results were found for the other PM<sub>2.5</sub>-related health outcomes considered in this analysis.

### *Economic Impact*

The results of an economic analysis for both the United States and for Michigan indicate that the effective cost of electricity in Michigan would decrease significantly with reduced emissions from coal-fired power plants. As shown in Table 1, this study estimates Michigan's total annual health-related damages in 2011 associated with air pollutant emissions from coal-fired power plants to be \$1.3 billion. The value of the damages in Michigan is equivalent to \$0.03 per kilowatt hour (kwh) (\$1.3 billion of damages divided by 53 billion kwh<sup>29</sup> of electricity generated by the 11 power plants in 2011 equals 3 cents per kwh). The value of the Business as Usual public health damages are substantial in comparison to the current cost of electricity in Michigan, \$0.10 per kwh.<sup>30</sup>

The emission rates and portfolio of renewable energy sources for the Cleaner Energy Future case represent an 83% reduction in the value of the annual health-related damages associated with Michigan power plants: \$220 million for the Cleaner Energy Future in comparison to \$1.3 billion for the Business as Usual case.

When Michigan-derived air pollutants that are transported out of state are considered, the annual value of the public health damages is estimated to decrease from \$8.2 billion (Business as Usual) to \$1.5 billion (Cleaner Energy Future), an 82% reduction in the

value of public health impacts associated with these electricity-generating facilities in Michigan.

**TABLE 1** Valuation of Annual Public-Health Damages Associated with Contributions of Coal-fired Power Plants in Michigan to Fine Particle Levels in Air

Estimate	Michigan			United States		
	2011	2025	Percent Reduction	2011	2025	Percent Reduction
Total value of health-related damages (\$ billion)	\$1.3	\$0.22	83%	\$8.2	\$1.5	82%
Per kwh value of health-related damages (\$/kwh)	\$0.03	\$0.01	80%	\$0.15	\$0.04	75%

## CONCLUSIONS

Over the next two decades, the United States has the opportunity to shift from its current energy portfolio that is heavily dependent on coal and other fossil fuels, toward a more diverse portfolio that includes a greater share of wind, solar, hydropower and biomass sources of energy. The driving forces for this shift include new and pending rules on air pollutant emissions authorized by the Clean Air Act, enforceable standards on the use of renewable energy sources being adopted by states, and advances in technology and policy that increase the cost competitiveness of renewables.

Increased reliance on wind, solar, and hydropower as sources of electricity will lower emissions of air pollutants and consequently, the levels to which humans are exposed to pollutants from electricity produced from fossil fuels. This analysis of a Business As Usual (2011) case and a Cleaner Energy Future (2025) case provides reasonable central estimates of the public health benefits expected to result from a decrease in air pollutant emissions from coal-fired power plants in Michigan. The results of this analysis indicate that a reduced reliance on coal-produced energy will provide substantial public health benefits. The major conclusions of the analysis are as follows:

Reduced air pollutant emissions from coal-fired power plants and increased reliance on renewable sources of energy forecasted for 2025 are expected to result in substantial reduction of health effects associated with Business as Usual for coal-fired power plants in Michigan.

The health benefits include an avoidance of over 800 premature deaths and 322,000 asthma attacks in the U.S. annually. These benefits are distributed across Michigan, Ohio, Pennsylvania, New York and other states of the Midwest and Mid-Atlantic regions.

Communities of color are disproportionately over-represented among those with negative health outcomes associated with the Business as Usual case and therefore stand to benefit more as air pollutants emissions from electricity sources are reduced.

For example, communities of color in Michigan represent only 18% of asthmatics in the state, but were found to account for 75% of the Business as Usual case emergency room visits for asthma. Communities of color were also estimated to receive the majority (76%) of the public health benefits for emergency room visits for asthma of the Cleaner Energy Future scenario.

The emission rates and portfolio of energy sources for the Cleaner Energy Future case would reduce the value of the annual health-related damages associated with Michigan power plants by 83%.

The value of public health damages for the Business as Usual case was estimated to be \$1.3 billion annually. In comparison, remaining damages associated with the Cleaner Energy Future scenario were estimated to be \$220 million per year.

## GLOSSARY OF TERMS/PHRASES

**Acid rain** – a mixture of wet and dry material that deposits from the atmosphere and contains higher than normal amounts of nitric acid and sulfuric acid

**Ambient air** – outdoor air that is accessible to the general public; for instance, outdoor air at ground level

**Clean Air Act** – a United States law that defines the federal government's responsibilities for protecting and improving the nation's air quality

**Biomass** – combustible vegetation (e.g., wood) that can be a fuel for production of electricity

**Fine particulate matter** – liquid and solid aerosols in air that have an aerodynamic diameter less than 2.5 micrometers

**Hydropower** – the process of generating electricity by harnessing the power of moving water

**Point and mobile sources of emissions** – release of pollutants to air from a process at a fixed location such as an exhaust stack (point sources) or from a process that is mobile (e.g., a moving vehicle)

**Renewable portfolio standards** – a mechanism for states to create a legally enforceable requirement for renewable energy generation using a cost-effective, market-based approach that is administratively efficient.

**Renewable sources of energy** - resources that rely on fuel sources that restore themselves over short periods of time and do not diminish. Such fuel sources include the sun, wind, moving water, organic plant and waste material (biomass), and the earth's heat (geothermal).

## IMAGE CREDITS

Page 10: Michigan Energy Michigan Jobs, <http://mienergymijobs.com/GettheFacts/RESMap.aspx>

## ENDNOTES

- <sup>1</sup> Note: Demographic data in this report are based on the 2000 Census.
- <sup>2</sup> U.S. EIA. "Net Generation by Energy Source. See also, EPA, "1970-2008 Average Annual Emissions, All Criteria Pollutants"
- <sup>3</sup> NRC. 2009. National Research Council of the National Academies. *Electricity from Renewables: Status, Prospects, and Impediments*. Washington, DC: The National Academies Press.
- <sup>4</sup> Mercury and Air Toxic Standards, Final Rule, U.S. Environmental Protection Agency, accessed September 2012.
- <sup>5</sup> <http://www.eia.gov/todayinenergy/detail.cfm?id=4850>, accessed September 2012.
- <sup>6</sup> In this analysis, communities of color are defined as the total population of African American (Non-Hispanic) and Latino/Hispanic (any race). This definition was developed using the data available from the 2010 Census. Information on baseline rates of health outcomes associated with air pollution were generally available for African-American populations but not always for other ethnic groups that comprise communities of color. Consequently, our analysis of impacts and benefits for communities of color is limited to African-American populations for three of the eight health outcomes. Details of ethnic groups represented for each health outcome are as follows:

Health Outcome	At-Risk Population	Ethnic Group Representation	
		African American	Latino/Hispanic
Premature mortality	> 29 years	X	X
Infant mortality	< 1 year	X	X
Asthma emergency room visits	All ages	X	X
Cardiovascular hospital admissions	> 64 years	X	
Respiratory hospital admissions	All ages	X	
Asthma exacerbation	Asthmatics, all ages	X	
Chronic bronchitis	> 26 years	X	X
Minor restricted activity days	18 – 65 years	X	X

- <sup>7</sup> NRC. 2010. National Research Council of the National Academies. *Hidden Costs of Energy: Unpriced Consequences of Energy Production and Use*. Washington, DC: The National Academies Press.
- <sup>8</sup> Michigan Energy Overview, Michigan Public Service Commission, October 2011.
- <sup>9</sup> Michigan Energy Overview, Michigan Public Service Commission, October 2011.
- <sup>10</sup> Some impurities produced by combustion of coal are captured by air pollution control equipment. The coal-fired power plants in Michigan operate systems that capture a portion of the fly ash generated by burning coal, but in general do not have systems that remove sulfur dioxide and nitrogen oxides which are converted to fine particulate matter once in the atmosphere.
- <sup>11</sup> U.S. Environmental Protection Agency. 2010. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010. EPA 430-R-12-001, April 15, 2012.
- <sup>12</sup> Pope CA, 3rd and Dockery DW. 2006. Health effects of fine particulate air pollution: lines that connect. *Journal of the Air & Waste Management Association*, 56(6):709-42; CASAC (Clean Air Science Advisory Committee). 2010. CASAC Review of Policy Assessment for the Review of the PM NAAQS – Second External Review Draft (June 2010); EPA. 2009. Integrated Science Assessment for Particulate Matter (Final Report). Washington, DC: U.S. Environmental Protection Agency; Pruss-Ustun A, Vickers C, Haefliger P, Bertollini R. 2011. Knowns and unknowns on burden of disease due to chemicals: a systematic review. *Environmental Health*, 10:9.
- <sup>13</sup> National Research Council of the National Academies. 2011. *Improving Health in the United States: The Role of Health Impact Assessment*. Washington, DC: The National Academies Press.
- <sup>14</sup> Environmental Health & Engineering, Inc. 2011. *Public Health Impacts of Old Coal-Fired Power Plants in Michigan*. Available on-line at: <http://www.environmentalcouncil.org/newsroom/pressRelease.php?x=69>
- <sup>15</sup> National Research Council of the National Academies. 2011. *Estimating the Public Health Benefits of Proposed Air Pollution Regulations*. Washington, DC: The National Academies Press.

<sup>16</sup> U.S. Energy Information Administration, Form EIA-923, detailed data, Available on-line at <http://www.eia.gov/electricity/data/eia923/>

<sup>17</sup> U.S. Environmental Protection Agency, 2010. Detailed Plan to Develop 2008 EGU Emissions.

<sup>18</sup> Projections for future utilization of DTE and CMS coal-fired power plants were prepared by 5 Lakes Environmental.

<sup>19</sup> Future demand for electric power is based on an annual growth rate of 0.5% per year for DTE and 1.2% annual growth for CMS. Emissions of primary PM<sub>2.5</sub> and oxides of nitrogen per unit of electricity generated were assumed to be equal in the baseline and future cases.

<sup>20</sup> Levy JI, Greco SL, Spengler JD. 2002. The importance of population susceptibility for air pollution risk assessment: a case study of power plants near Washington, DC. *Environmental Health Perspectives*. 110(12):1253-60.

<sup>21</sup> EPA. 2010. 75 Federal Register 32,048 *US EPA Preliminary Review of Environmental Justice Impacts April 2010 (EPA-HQ-OAR-2002-0058-0835)*. Washington, DC: U.S. Environmental Protection Agency; Pastor M, Morello-Frosch R, Sadd JL. 2006. Breathless: Schools, Air Toxics and Environmental Justice in California. *The Policy Studies Journal*, 34:3 337-362.

<sup>22</sup> Babey SH, Hastert TA, Meng Y-Y, Brown ER. 2007. Low-Income Californians Bear Unequal Burden of Asthma. *Policy Brief—UCLA Center for Health Policy Research*. (PB2007-1):1-7.

<sup>23</sup> Krewski D, Jerrett M, Burnett RT, et al. 2009. Extended Follow-Up and Spatial Analysis of the American Cancer Society Study Linking Particulate Air Pollution and Mortality. Boston, MA: Research Report from the *Health Effects Institute*, 140:5-114.

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Health Outcome	At-Risk Population	Resolution	Baseline Rate per 1,000 Population		Percent Increase per $\mu\text{g}/\text{m}^3$ PM <sub>2.5</sub>
			Total	Color	
Premature mortality	> 29 years	County*	3.30 – 56.3	1.4 – 923.1	1.0%
Infant mortality	< 1 year	County*	2.60 – 31.4	4.20 – 33.2	0.7%
Asthma emergency room visits	All ages	Region 1	8.14	19.44	0.8%
		Region 2	7.75	24.64	
		Region 3	5.58	7.33	
		Region 4	3.46	4.60	
Cardiovascular hospital admissions	> 64 years	Region 1	31.44	41.79	0.16%
		Region 2	28.27	20.01	
		Region 3	24.67	33.62	
		Region 4	18.66	39.24	
Respiratory hospital admissions	All ages	Region 1	4.65	5.23	0.2%
		Region 2	4.40	3.36	
		Region 3	4.89	4.90	
		Region 4	3.49	5.41	
Asthma exacerbation**	Asthmatics, all ages	National	63.0 – 109.3	71.0 – 179.1	2.0%
Chronic bronchitis	> 26 years	National	3.78		1.5%
Minor restricted activity days	18 – 65 years	National	7805.39		0.7%
* Values represent range of baseline rates for each county					
** Asthma prevalence and asthma attack per asthmatic based on national resolution for age and race groups					
Region 1 Northeast (ME, NH, VT, MA, CT, RI, NY, NJ, PA)					
Region 2 Midwest (MI, OH, IL, IN, WI, MN, IA, MO, ND, SD, NE, KS)					
Region 3 South (DE, MD, DC, VA, WV, NC, SC, GA, FL, KY, TN, AL, MS, AR, LA, OK, TX)					
Region 4 West (MT, ID, WY, CO, NM, AZ, UT, NV, WA, OR, CA, HI, AK)					

<sup>25</sup> EPA 2010. Regulatory Impact Analysis for the Proposed Federal Transport Rule. Washington, DC: U.S. Environmental Protection Agency, Office of Air and Radiation.

<sup>26</sup> EPA 2010. BenMAP: Environmental Benefits Mapping and Analysis User's Manual. Research Triangle Park, NC: Office of Air Quality Planning and Standards, U.S. Environmental Protection Agency.

<sup>27</sup> U.S. Environmental Protection Agency, 2010. Detailed Plan to Develop 2008 EGU Emissions.

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Business as Usual Case and Cleaner Air Future Case Annual Mortality and Morbidity Impacts for Communities of Color Associated with Fine Particulate Air Pollutant Emissions from Coal-fired Electricity Generating Units in Michigan								
Outcome <sup>28</sup>	Michigan				Continental United States			
	2011 Cases	2025 Cases	Cases Avoided	Percent Reduction	2011 Cases	2025 Cases	Cases Avoided	Percent Reduction
Premature mortality	44	7	37	85%	200	35	165	83%
Cardiovascular hospital admissions*	1	<1	1	85%	12	2	10	84%
Respiratory hospital admissions*	3	<1	3	85%	14	3	11	82%
Chronic bronchitis	14	2	12	85%	70	10	60	82%
Asthma emergency room visit	18	3	15	84%	280	60	220	80%
Asthma exacerbation*	24,000	3,700	20,300	85%	101,000	18,000	83,000	82%
Minor restricted activity days	16,000	2,500	13,500	84%	86,000	15,000	71,000	82%

\* Community of color includes African American population only

Communities of color represent both African American and Latino/Hispanic populations unless otherwise noted. The percentage of the cases avoided for the overall community of colored represented by the African American population is as follows:

- Premature mortality: 89%
- Chronic bronchitis: 86%
- Asthma emergency room visits: 84%
- Minor restricted activity days: 81%

<sup>29</sup> U.S. Energy Information Administration, Form EIA-923, detailed data, Available on-line at <http://www.eia.gov/electricity/data/eia923/>

<sup>30</sup> U.S. Energy Information Administration, data obtained from State Electricity Price Rankings spreadsheet, Available online at [http://www.eia.gov/energyexplained/index.cfm?page=electricity\\_home#tab2](http://www.eia.gov/energyexplained/index.cfm?page=electricity_home#tab2)



**March 25<sup>th</sup>, 2013**

**Introduction:**

My name is Tushar M. Patel and I represent H.R. Technologies, Inc.

I believe the issue of safeguarding Michigan's energy future is a key to ensuring that our state remains attractive to families and businesses, and offers the best opportunity for sustained economic growth.

I would like to thank Gov. Rick Snyder, MPSC Chairman John Quackenbush, Michigan Energy Office Director Steve Bakkal and their staffs for putting together this forum. We believe it is the best approach to tackle such an important issue and support it wholeheartedly.

We are concerned about and have a stake in what Michigan's electricity framework looks like over the next several decades.

H.R. Technologies is a manufacturer of the critical raw materials for the automotive interiors. Our business is structured around just in time manufacturing and kan - ban system demanded by the automotive OEM's and Tier 1 suppliers. It very important that we have uninterruptable utilities available for our manufacturing processes and also the service providers has an adequate back up plans and staff to resurrect supply of electricity in a timely manner.

**Messages:**

My view of the current environment for energy in Michigan and the role electric power plays in the success of my members suggests that the state's current law is working as it was designed to.

The current system makes sure that the lights come on and that energy is readily available to grow the economy. Taken a step further raising the 10 percent cap and moving to a deregulated market risks the 100 year history local utilities have of providing power when we need it.

Michigan's 2008 Energy Laws, passed by the legislature in a bipartisan manner, have paved the way for the state's largest investments in renewable energy. It has also led to programs that have encouraged the use of energy efficiency, as well as programs designed to assist homes and businesses better manage their energy usage.

For example, my local utility, DTE Energy, is investing more than \$ 2 billion in renewable energy – wind, solar and hydroelectric – as a result of the 2008 energy package. They are also planning more than \$600 million in environmental upgrades to their facilities, because of the state's comprehensive energy plan currently on the books.

We also believe Michigan's current model offers businesses the opportunity to better support the state's economic recovery, through greater investment in programs like the Pure Michigan Business Connect Initiative. Michigan-based companies are providing goods and services, and creating jobs because of the favorable business environment.

**Last year, DTE Energy spent more than \$800 million with Michigan suppliers. It's that kind of investment that allows companies like mine create some of the nearly 7,000 full-time jobs in Michigan in 2012.**

**We (H.R.Technologies, Inc.) have added approximately 30,000 sq. ft. of additional manufacturing space and created about 40 new fulltime Jobs over the past year.**

Of course, all processes can be improved, and the current regulatory model in Michigan is no exception. We believe there can be constructive



discussion around how to better ensure that our customers get consistent, quality services at a reasonable price. That is why these deliberative fact finding forums work.

In order to make these discussions fruitful, we need to understand where the current system has been successful. We will be happy to provide any additional information to the Chairman that helps the process.

**Kicker:**

Again, we'd like to thank Gov. Snyder, Chairman Quackenbush, Mr. Bakka and the committee for this opportunity to share our perspective on the issue of Michigan's energy future.

We believe that utilities producing safe and reliable electricity within a stable and predictable regulatory infrastructure will lead to greater capital investment, opportunity for job growth and more affordable rates.

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