

**The Great Lakes
Environmental Law Center**

*Protecting the world's greatest freshwater resource
and the communities that depend upon it*

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Detroit, Michigan 48202
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Re: *What is the long-term potential for more wind, solar, hydro, biomass, landfill gas, and other renewable sources?*

Wind

The long-term potential for wind energy development in Michigan is tremendous. Currently, Michigan has approximately 1,119 MW of onshore wind power capacity installed.¹ Michigan's best onshore wind locations are in the thumb region, and in certain areas along the shoreline of Lake Michigan. Outside of the current wind farm locations, however, the vast majority of the state is rated marginal to poor by the U.S. Department of Energy (DOE) at 50 meters, with slight improvements at 80 meters.² The real potential for long-term wind power development lies in the offshore regions of the state, as most of Michigan's Great Lakes areas are rated excellent to outstanding.³ The DOE estimates that there are 700 gigawatts, or 700,000 megawatts, of offshore wind potential in Michigan.⁴ This could provide enough energy for most of the state, as a single 5 MW turbine can power up to 1,500 homes annually.⁵ Provided that

¹ Michigan Public Service Commission, *Report on the Implementation of the P.A. 295 Renewable Energy Standard and the Cost-Effectiveness of the Energy Standards* at 8 (February 15, 2013).

² See Appendices A and B, below.

³ *Id.*

⁴ Dave Alexander, *The Great Lakes huge potential for wind energy development drives industry interest*, MLive (April 20, 2012). Available at:

http://www.mlive.com/news/muskegon/index.ssf/2012/04/the_great_lakes_has_huge_poten.html.

⁵ *Id.*

future offshore wind farms are cited and handled properly, Michigan's wind energy future is certainly a promising one.⁶

Solar

Solar power also has the potential for greater implementation within the State of Michigan. The National Renewable Energy Laboratory estimates that, on average, PV solar panels in Michigan can generate 4 kWh of energy per square meter per day.⁷ To give that statement context, that is enough to power a 60-watt light bulb for approximately 16 hours per day. More widespread implementation of small-scale, residential and commercial solar units could provide benefits to consumers through reduced energy bills, as well as decrease individual carbon footprints. Moreover, the utility-scale solar market has plenty of room for expansion, as the state only has about 17 MW of solar installations up and running.⁸ The most obvious obstacle to the rapid expansion of Michigan's solar market is cost. However, the median installed price of residential and commercial PV systems fell by 11 to 14 percent in 2011 and continued to drop another 10% into early and mid 2012.⁹ Moreover, First Solar, which makes the world's lowest cost solar panels, expects another 18% decline in prices by next year.¹⁰

Furthermore, the Solar Programs offered by DTE and Consumers' Energy have been unable to meet the high levels of demand in recent years. Those programs must be expanded in order to meet the demand from the residential and commercial customers. Consumers, as well as

⁶ For an analysis of the legal implications of wind farm citing, please refer to GLELC's response to question 14 under the "Renewable Energy" heading.

⁷ National Renewable Energy Laboratory, report. Available at: http://www.nrel.gov/gis/re_potential.html.

⁸ MPSC. See fn. 1.

⁹ Allan Chen, *The Installed Price of Solar Photovoltaic Systems in the U.S. Continue to Decline at a Rapid Pace*, Lawrence Berkeley National Laboratory (November 27, 2012). Available at: <http://newscenter.lbl.gov/news-releases/2012/11/27/the-installed-price-of-solar-photovoltaic-systems-in-the-u-s-continues-to-decline-at-a-rapid-pace/>. See also: Matt Daily and Krishna N. Das, *Solar prices drop more, pressuring panel makers*, Reuters (April 13, 2012). Available at: <http://www.reuters.com/article/2012/04/13/solar-prices-idUSL2E8FAD0X20120413>.

¹⁰ *First Solar Shares Burn Higher on Strong 2013 Outlook*, CNBC (April 9, 2013). Available at: <http://www.cnbc.com/id/100628362>.

the utilities, could benefit from the expansion of smaller-scale solar programs, especially given the recent drops in solar panel prices.

Hydro, Biomass, Landfill Gas, and Other Renewables

Hydropower is not a significant source of energy in Michigan, and as of 2012 accounted for only .7 MW of capacity.¹¹ Due to the age of many of the state’s dams, as well as the relatively small size of the rivers, this energy source is not projected to expand. The Department of Natural Resources points out that “several hydropower projects may be retired in the coming decades” and that many existing projects “have not produced power for many years and are often in serious disrepair.”¹²

Biomass, landfill gas, and biogas currently account for 45 MW of capacity in Michigan.¹³ The potential exists for increased energy production from these sources, but much of it depends on technology upgrades and the willingness of parties to invest in such endeavors. Michigan’s farmlands, forests, and landfills are all capable of providing fuel for energy production. However, cutting down thousands of acres of trees for use as fuel is not much more sustainable or environmentally friendly than burning coal. Thus, farm waste and landfill gas are the more sensible options for renewable energy production.

Michigan clearly has the proper resources to expand its renewable energy portfolio. The state ranks highly in offshore wind potential and can also benefit from an expanded solar market.

¹¹ MPSC. See fn. 1.

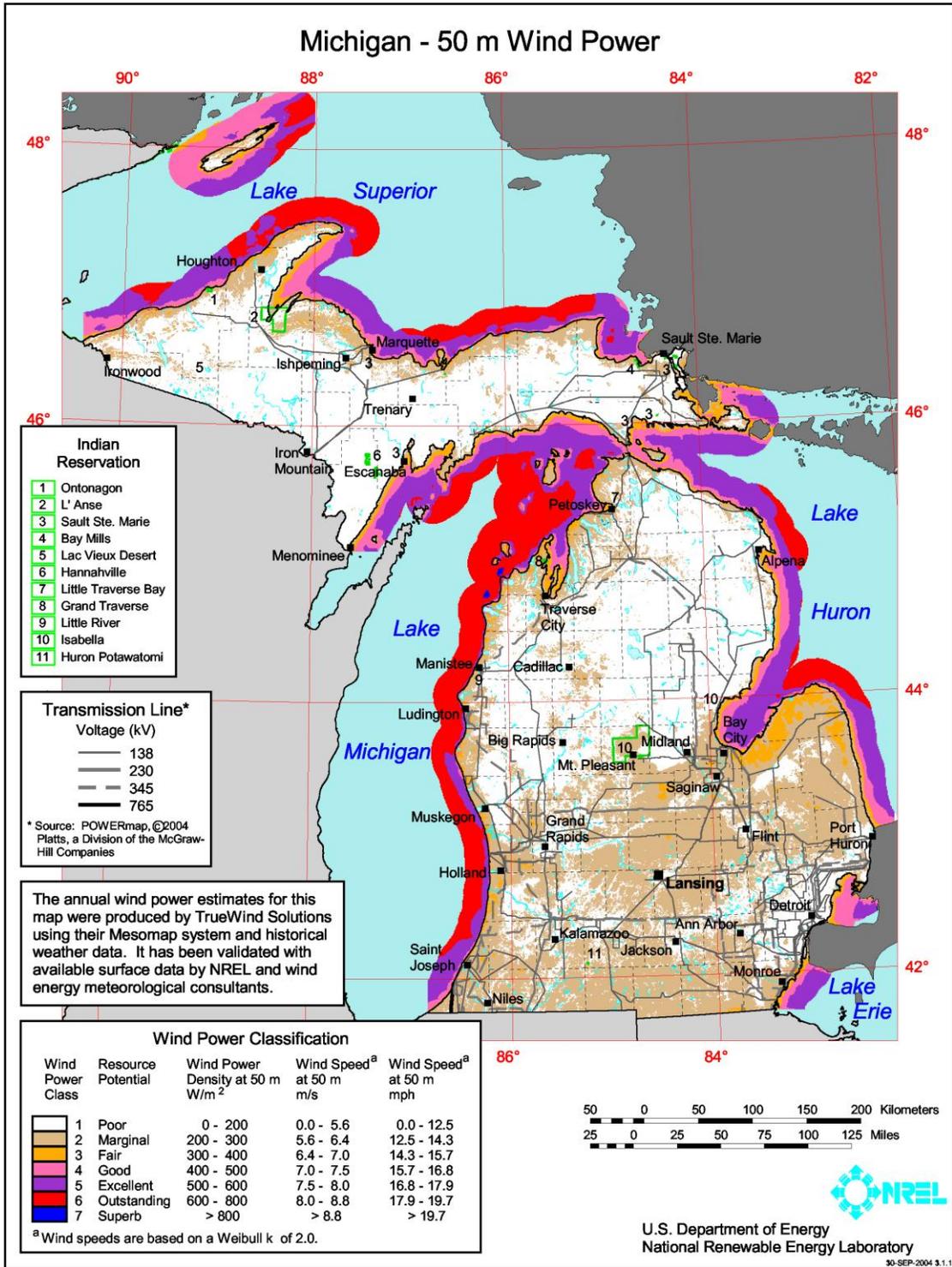
¹² Michigan Department of Natural Resources. Available at: http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_27415-80296--00.html.

¹³ MPSC. See fn. 1.

Respectfully submitted,

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Appendix A



Appendix B

