

Hon. Senator Michael Nofs. I am respectfully submitting the following comments to the Senate Energy and Technology Committee hearing on SB 438 as a private citizen residing in Lyndon Township, Washtenaw County. I hope you and the members of the committee will carefully consider my experience and recommendations for implementation to improve the proposed legislation.

Senate Energy and Technology Committee
Submitted General Comments on Michigan Clean Energy Policy
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Pope Francis, President Obama, the US Environmental Protection Agency, the US Department of Defense, and most of the civilized world agree that climate change caused by humans is the primary threat to global and national security and well being.

Effective clean energy policy legislation is good for Michigan's citizens, businesses, economy, and successful industries. Good energy policy can foster a healthier environmental and economic future and needs to be taken seriously. Responsible major corporations increasingly consider effective state clean energy policy as a primary and important factor in investment decisions for expansion. The citizens of Michigan deserve an energy policy that aggressively expands the use of solar energy by injecting free market economic principles into the traditional monopoly dominated electric and energy markets that operate without the basic tenets of capitalism of competition and risk as the justification of reward. Encouraging private individual and business investment in the "means of producing" electricity with solar energy preserves and improves our environment while contributing to a healthier true market based economy in the future. The overriding factor in a successful energy policy must be the recognition that private homeowner and business investment in clean energy technology deserves to earn a fair rate of return.

Clean solar energy is abundantly available in Michigan, thousands of times what we use, and should be the primary and sole source of any expanded generation of electricity. Germany, which is cloudier than Michigan and located entirely above Lake Superior, is presently producing 30% of its daily energy with renewables and as much as 74% of peak daytime demand with a vigorous and significant economic impact. Michigan could easily do better.

My personal experience began 3 years ago when I invested in a 3.4kW solar system as part of major renovation of our family home. I chose to connect to the Consumers Energy electric system on the Experimental Advanced Renewable Program (EARP). In the past year, my family also replaced two conventional automobiles with two new Ford Fusion Energi plug-in hybrid electric vehicles (PHEV). These vehicles qualified me to participate in Consumers Energy PEV time-of-day pricing program. The EARP/PEV programs have provided significant benefits to Consumers Energy, the state, and myself.

From my standpoint, the solar panels produce more than enough energy to charge my PHEV each day. Given my driving patterns, the solar charge energy displaces 80% of fuel energy costs over the life of the vehicle. Additionally, I effectively sell solar energy at a premium price during

midday peak demand and buy PHEV charge energy overnight at a reduced off peak price during low demand. The combined impact is that my solar panel and PHEV investments have provided a satisfactory and reasonable rate of return to justify my investment risk in a competitive, free, and open solar market.

In recognizing the benefits to me, it is fair to ask what are the benefits to Consumers Energy and State of Michigan. The benefits are multiple, significant, and increase with higher solar generating contributions.

1. Every unit of solar produced electric energy displaces the 4 units of fuel energy required to produce an equivalent 1 unit of electrical energy by a central station steam electric system that is 25% thermally efficient - without the 3 units of waste heat and the massive amount of hazardous greenhouse gases
2. Every unit of solar produced electric energy at the point of use effectively eliminates the transmission and distribution losses associated with the conventional electric energy supply network.
3. Solar panels produce high value energy during the peak seasonal and daytime demand hours displacing high cost peaking plant generation, reducing overall daily and seasonal peak demand, and eliminating the need for unnecessary investments in new conventional generating capacity.
4. A portion of the profits from private homeowner and business investment in a solar electric system on the EARP feed-in tariff program is shared with the electric utility while simultaneously eliminating any CMS investment capital in the available increased generating capacity, This is accomplished by including my investment in solar panels as part of Consumers Energy's generation portfolio.
5. Clean solar electric panels offer the best path to improving air quality while eliminating the compliance costs for the utility to clean up their coal plants to meet air quality standards.
6. Solar systems on homes and business property reduces the thermal overload on the Great Lakes from the massive heat losses of coal and nuclear central station generating plants. 72% of the Great Lakes water usage is for power plant single loop cooling systems that raise the temperature by 30 degrees. Any question why Buffalo gets 11 feet of snow or Toledo has a summer toxic algae plume making water unusable can be answered by observing the American steam power plants lining the west and south shore of Lake Erie. Interestingly, Ontario Canada has no steam electric plants discharging into Lake Erie. Ironically, the same is true with the lake effect snow in western and south western Michigan from power plants on Lake Michigan in Wisconsin, Illinois, and Indiana.
7. In my case, the benefits are compounded by my plug-in hybrid electric vehicle. First of all, charging my PHEV overnight has the desirable effect of increasing demand during periods of low demand. Secondly, the benefits of my solar produced electricity displacing 4 units of fuel energy while reducing my transportation fuel use and the associated impacts by 80%.
8. Ford Motor Company, in my case, and General Motors can benefit from increased sales of their high value PHEV/BEV products.
9. It is good for Michigan businesses. I engaged the services of local electrical contractors to install both the solar equipment and PHEV charging equipment.

It should be clear, good energy policy, like the successful Consumers Energy EARP and PEV programs, can have a beneficial impact on private investment in clean energy, traditional electric suppliers, and the State of Michigan and its citizens. A clean energy policy that benefits all interests may also want to consider the following recommendations:

1. The Consumers Energy EARP and PEV programs should be expanded significantly and adopted by DTE Energy
2. Future increases in generating capacity should be limited to solar, wind, hydro, and local clean or high efficiency biofuel energy sources.
3. The RPS values should be increased to coincide with the decade - 20% by 2020, 30% by 2030, and ... 100% by 2100
4. The PRS values should apply equally to all existing electric suppliers - IOU, municipal, and REC electric suppliers.
5. Encourage and support private investment by homeowners, businesses, and industries in distributed solar electric generation by unrestricted and unlimited access to the grid.
6. Increase generation capacity by municipal, REC, and community based distributed and micro-grid systems incorporating clean or high efficiency energy technology.
7. Encourage seasonal, rural, and remote homes and businesses to install stand-alone solar based power systems to reduce the vulnerable, high cost, high loss rural electric network where practical.
8. Replace counter intuitive interruptible air conditioner programs, that turn off your air conditioner when you need it most, with a program for DTE and CMS to install 12 solar panels to power the air conditioners of residential customers willing to put them on their property.
9. Invest in system reliability and safety by burying existing overhead power lines in neighborhoods to reduce costly power outages to communities due to severe weather events. This would reduce both the clean up costs to repair the grid to re-establish service and the safety hazards of downed power lines near homes.
10. In the long term, monopoly regulatory pricing should transition to free market based pricing that considers both direct and indirect cost factors. This can be accomplished by opening the grid to all electrical suppliers including private individuals and businesses that chose to invest in "the means of production" of electricity.

It is clear that SB438 as proposed, and the corresponding House legislation, does not adequately serve the interest of Michigan's citizens and businesses and needs significant modification to set our state on a reasonable and rational future energy path that benefits all. I hope you will carefully consider my experiences and recommendations. As an accomplished engineering manager with a lifetime of clean energy and transportation technology experience including a comprehensive understanding of the global electric supply network, I would be pleased and honored to speak in person before the Senate Energy and Technology Committee to share my experiences and address the details, rationale, and benefits of the recommendations provided. I would also be willing to meet with any individual members of either the Senate and House Committees at our mutual convenience to discuss these matters.

Thank you for your consideration.

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