



ADVANCING PUBLIC TRUST SOLUTIONS
TO SAVE THE GREAT LAKES

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My name is Liz Kirkwood and I'm the Executive Director of FLOW ("For Love Of Water"), which is a water policy and educational institute dedicated to understanding the threats and solutions to water in the Great Lakes by focusing on the nexus between water, energy, food, and climate change.

I want to thank Michigan Public Service Commission Chairman John D. Quackenbush and Michigan Energy Office Director Steve Bakkal for the opportunity to speech and address overall question 1: What information do energy policy makers need to consider in order to make good energy decisions?

Michigan faces a watershed moment and opportunity to chart a new cleaner energy course that is good for jobs, good for the environment, good for energy affordability, and good for the water.

To chart this new course, we first must recognize that our energy choices profoundly affect our water and cause serious climate change impacts.

Water and energy are inextricably linked. Water is used and lost in energy-resource extraction, refining and processing, transportation, and electric-power generation. And yet, because water is such a cheap commodity, it is rarely calculated and balanced in our energy decisions. Let's change this so that the water-energy nexus become an integral part of charting Michigan's energy future plans.

By 2035, the amount of water consumed for current energy production is projected to double. During this same time, there will be increasing water scarcity from pollution, waste, drought and human-induced climate change and impacts.

Given the clear interrelationship between energy, food, and water, we can no longer "silo" these sectors; rather we must improve decision-making with greater integration and collaboration between water resource management and energy production.

This calls for a new vision that recognizes the nexus between water, energy, food, and climate change. To make this shift, *we must view water in a different light where water becomes the starting point for everything we do.* Without water the health of our people, economy and ecosystem are diminished.

The recent U.S. natural gas industry shale boom has reignited attention on the water-energy-climate change nexus. The big issue with hydraulic fracking is the water, both in terms of sheer quantity (e.g., 300 million gallons to frack 13 wells in Kalkaska County) and safe disposal of chemical-laden and often toxic wastewater that will never return to our hydrologic cycle. Before Michigan embraces natural gas as a "bridge" fuel, we must

conduct a generic analysis of cumulative impacts on water, environment, and health that properly weighs the unprecedented risks that fracking poses to our precious water resources.

Additionally, Michigan's coal-fired power plants are the state's largest single source of heat-trapping carbon dioxide emissions, which are detrimentally contributing to climate change by increasing lake evaporation and causing our extreme low water levels in Lake Michigan-Huron.

In fact, we hit record low water levels in January of this year – 26 inches below average – according to data collected by the U.S. Army Corps of Engineers since 1918. The water levels issue is at the heart of the Great Lakes' and Michigan's economy, energy and water needs, social fabric, quality of life, and environment. In March of this year, our Governor signed legislation providing \$21 million in taxpayer emergency funds to dredge state harbors that are in danger of becoming impassable because of low water levels.

We cannot sit idle anymore; rather we must adapt our current fossil-fuel economy to one with low-carbon and low-water footprint. Water in effect must become the center of everything we do, such that shifting to renewables becomes the obvious energy choice and addresses the root causes of receding water levels so that we do not jeopardize our current and future way of life.

Michigan is already witnessing renewable energy sources like wind becoming more cost effective and affordable to our businesses and citizens than polluting traditional sources like coal and oil. Wind is at 4.5 cents/KWH as opposed to traditional blended energy sources at 7.6 cents/KWH. The benefits of renewable energy are clear: affordable, clean, stable rates, Michigan job generator, minimal water use, and protective of human health and the environment.

In addition, Michigan should promote energy efficiency and energy conservation in all sectors because it is the cheapest, cleanest, and most quickly deployed source of energy.

To chart this new course, Michigan must embrace its innovative manufacturing traditions and promote renewable energy sources to reduce pressure on water resources and limit adverse climate change impacts. We think Michigan can and should become a leader in renewable energy, and at a minimum compete with the neighboring states that currently generate 20%+ of renewable power with excellent reliability.

We urge the State of Michigan to think wisely about its future energy choices, pay for water consumed, and ensure that the long-term energy decisions are good for our water too. Once we chart this path, then we can proudly say we are living up to our motto: "Pure Michigan."

