

COMMENTS TO THE DOE REGARDING THE LEEDCo ICEBREAKER PROJECT

As a taxpaying citizen committed to the environmental health and preservation of our Great Lakes, I am writing with strong objections to the proposed Icebreaker project. I have heard some people minimize the potential damage to Lake Erie these six turbines would cause, but the reality is that Icebreaker is merely a "test project" for the one thousand industrial wind turbines that LEEDCo and community leaders hope to ultimately construct in the waters of Lake Erie. Yes, one thousand! Ronn Richards, president and CEO of the Cleveland Foundation has stated that publicly. Considering the small contribution six turbines would make to the electric grid, that expectation does, in fact, help to justify support for Icebreaker.

So, let's look at some data. LEEDCo projects the cost for six Industrial Wind Turbines (IWT) to be **\$125 million**. With overruns, that could reach **\$150 million** or more. Apply that to the approximate 535,000 households in Cuyahoga County, and then factor in the many (hundreds? thousands?) of businesses, hospitals, and other large electricity consumers, and it is only fair to look at the six IWTs as a mere test case for one thousand IWTs. Using the \$125 million figure, that puts the ultimate cost at about **\$20.83 billion!** Then, add the annual maintenance costs. Estimates I have read average \$5 million for the six IWTs annually, and therefor, approximately **\$833 million** annually for one thousand turbines. Based on common sense and data from other wind projects, the cost and work of decommissioning and removal would be inconceivable.

Aside from the fact that our country is already in a debt situation that we will likely never recover from, it is only fair to examine the other costs this project, and ultimately, 994 more WTs would incur, the costs to our environment and ecosystem.

Carbon Dioxide (CO2) Reduction- As you are acutely aware, Industrial Wind Energy (IWE) is merely an additive source to the power grid, typically producing much needed power only on average 25% of the time. Therefore, whatever conventional source of power a given community relies on the majority of time must be maintained and kept running at all times. In Ohio, much of that is coal. The amount of CO2 reduction in places that rely intermittently on IWE, in all honesty, varies. I will only present data. An exhaustive study by Bentek Energy, a Colorado based energy analytics firm, reviewed actual emissions data from four electric generating plants in the midwest (published in 2011), serving about one third of the U.S. population. They found that sulfur dioxide was not reduced at all and CO2 reduction ranged from 0.1 ton to 0.3 tons per megawatt-hour. Worse, Denmark, according to data obtained by Denmark's leading business journal, reported that with the construction of 6,000 IWTs, fluctuating coal back up resulted in an actual INCREASE in CO2 emissions, up 36% in one year alone. Whichever study is used, the bottom line is that IWE has not been proven to consistently, effectively reduce fossil fuel emissions. In addition, per the International Energy Agency (IEA), U.S. emissions decreased by 7.5% between 2006-2011, more than any other country under the Copenhagen Accord. That is without building the astronomical number of IWTs being proposed here and throughout, including offshore of, the U.S. If we, as a nation, continue to strive for energy conservation and efficiency,

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car and fuel economy standards, insulation of buildings, and more, wouldn't our emissions continue to fall without adding this unwarranted harm to the environment?

Excavation of the Great Lakes floor- Until the 1980s, multiple toxins, including PCB, dioxin, mercury, cadmium, lead, arsenic and more, were filtering into the lakes from agriculture and industry, largely unregulated, and poisoning lake users and dwellers. Much of that "toxic soup" is thought to be encapsulated, buried beneath years of cleaner sediment and sand, thanks to clean up efforts by the IJC, the NYS DEC, and federal and state governments. Lake Erie was once termed a "dead lake", but as a result of vigorous regulatory efforts, is now a thriving fishery, source of drinking water, and home to countless avian and waterfowl species. Disruption of these chemicals would result in inevitable disbursement. How can anyone prove that this risk is minimal and short lived, or how much harm and damage would occur as a result? Imagine burying transmission cable beneath the lake floor from shore, and then from IWT to IWT one thousand times, at great distances from each other, and them back to shore. Although LEEDCo claims that the mono-bucket IWT design requires little excavation, multiply that times one thousand. For the minuscule amount of intermittent, unreliable, unpredictable amount of power these IWTs will add to the grid, is this likely re-circulation of poisonous metals and toxins worth the risk?

Energy Sprawl- It was the Nature Conservancy, one of the most conservative environmental groups in the U.S., that coined that term. It refers to the amount of land, and in this case fresh water lake, required for the production and transmission of IWE (and also solar). To protect our fragile environment, human activity and the development of industry must be kept to a minimum, especially when it is feasible to do so, as it is with power sources. In other words, utilizing small amounts of real estate, and thus less environmental destruction, for large amounts of production. For example, in Texas, the South Texas Project, two fission reactors, produce 2,700 megawatts of power. This is done on **18.75 square miles** (56 watts/square meter). The same amount of IWE would require **869 square miles** (6.7 megawatts/square meter), or **45 times** as much acreage to produce as much power as nuclear (This information was compiled by Robert Bryce in his book, Power Hungry)! I still have an article from the Sunday Telegraph (May 22, 2011) that compares a proposed 800 IWT project in Wales that would require hundreds of miles and produce about **300 megawatts** of power compared to a gas-fired power station near Plymouth that produces **882 megawatts** on "a few acres without disfiguring one of the most beautiful landscapes in Britain at 1/15th of the cost". The list of similar comparisons is vast! And now with taller IWTs that longer blades than when this was published, the IWTs are spaced farther apart, which would require even more environmental destruction of Lake Erie for its ultimate one thousand IWTs!

Turbine Maintenance and Damage- There is varying data regarding the life expectancy of IWTs, from ten to twenty five years depending on the study, and unanimously with a shorter life expectancy offshore. However, compared to the 40-80 years expected for gas fired and nuclear powered plants (respectively), any of these figures compare negatively. Add that to the location, the middle of Lake Erie, and

routine maintenance will be difficult if not impossible during those times when damage is most likely to occur- intense "noreaster" storms with high winds, waves, pounding rain, and lightening, as well as during intense cold winter months when the lake is frozen. Exploding and burning IWTs are becoming more commonplace as the numbers of IWTs increase, and when this occurs, there is no way to reach and extinguish them. As turbine blades burn, they create toxic emissions and blade throw can be lethal and catastrophic. Large, sharp blade segments have been known to be thrown up to a mile, some still burning. If the hope is to eventually construct one thousand IWTs in Lake Erie, that is three thousand fiber carbon blades, up to 250 feet in length each, all at risk for toxic exploding, burning, and blade throw, trashing the lake! And in the best of circumstances, they ultimately age out. In Denmark with six thousand aging IWTs, and thus eighteen thousand aging blades, their leading business journal states, "A gigantic mountain of scrap blades is building up.... there exists no solution", as they can not be practically recycled and are too toxic to incinerate. Even onshore, damaged and rusting IWTs are increasing in number, now at least 4,500 in California alone, in spite of promises and plans for decommissioning! Is Lake Erie destined to become a toxic, filthy, burned out and rusting industrial junk yard? LEEDCo will promise that will not happen, but it does happen all too often, and it likely will!

Avian and Bat Slaughter- This is perhaps one of the saddest and most negative aspects of IWE. It is also a topic that will be commented on by many who object to the Icebreaker project. There will be quotes and data from the recently published Avian Radar Studies by the USFWS. There will be submissions regarding the number of IWT bird and bat kills, including the horrific Golden eagle slaughter at the Altamont Pass IWE project in California, the imploding lungs of bats as they approach IWTs at night to feast on the insects on the turbine blades, and more. I will not repeat these numbers in this submission. I will, however, repeat the information I have submitted to the DOE and to the ODNR, OPSB, and USACE in the past, as this information is crucial to never be forgotten, and if one thousand IWTs is the ultimate goal for Lake Erie, it will change our avian and bat populations forever. Back in March 2011, Jeff Schmidt, Chapter Director of the PA Sierra Club testified to the PA State Legislature regarding placement of IWTs in Lake Erie. He testified, "**Lake Erie is unique among the Great Lakes because its shallow depth provides forage grounds for ducks, loons, horned grebes, and other waterfowl across its entire surface. Shorebirds, songbirds, and raptors all cross Lake Erie at varying altitude and locations. Migratory birds are already stressed...**". He goes on to state, "**Lake Erie is unique in that its shallow depth provides potential habitat for pelagic birds across most of the lake's surface. The USFWS and Ohio DNR recently completed a two year study with over 75,000 observations to map pelagic bird distribution and abundance in the Ohio waters of Lake Erie**". Be sure, once these IWTs are allowed to be built, there will be NO mitigation. How do you replace dead birds? It won't matter. It is the responsibility of the wind developer to count and report dead birds. Seriously. An example of how that works is Wolf Island, a small Canadian island at the eastern end of Lake Ontario. A relatively small project consisting of 86 turbines, 1,141 bird, 24 raptor, and 1,720 bat collision fatalities were reported during the first year alone! That does not include the carcasses that were blown into the lake, the injured birds that flew over the lake and then died, or

the carcasses that were eaten by small mammals or vultures, or the flocks and individual numbers of geese, ducks, and other waterfowl that have been recorded flying into the turbine blades. The public outrage from this horrendous bloody, painful slaughter, leading the project to be referred to as the deadliest energy facility in Canada, resulted in new "management" procedures. This "management" is a revised counting strategy, consisting of counting carcasses in a small gravel area below the turbines and counting infrequently. This bogus counting and reporting by the wind industry has resulted in unrealistically low numbers of birds believed to be killed by IWTs, a fallacy that is accepted by our own government as well. I don't need to multiply those deaths caused by 86 IWTs to what we can expect from a possible one thousand turbines. It wouldn't matter anyway, as it is impossible to accurately count the deaths that would occur day and night in the middle of Lake Erie.

Recalling the fourteen deficiencies, inefficiencies, omissions, and inaccuracies cited in LEEDCo's original permit application, primarily environmental in origin, it is clear that their ability to accurately and honestly protect the Lake Erie environment is severely lacking. This precious fresh water source and ecosystem must, at all costs, be kept in trust for all who drink from it, live in it, migrate over and around it and forage in it. To disrupt it with construction of an industrial energy site of six turbines that will produce a relatively meaningless amount of power in preparation for the hopes of one thousand IWTs that will still require constant back up, is not just an unthinkable idea, it is obscene. It is a plan that we can not afford, environmentally, financially, or in any other way.

Respectfully Submitted,

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