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In Opposition to the proposed HB 434

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To the Ohio Senate Energy and Public Utilities Committee

It is hard to identify the worst part of HB 434. The bill is a mishmash of blank check and wishful thinking ideology that establishes authority in the State of Ohio for an enormous group of concepts that have no clear oversight, controls on spending, or regulatory restraint of any sort.

Proponents of the legislation are clearly hoping to see some developments that are impossible, devoid of reference to real world developments, or which engage very small, legitimate parts of the broad range of topics covered by HB 434, with almost no real connection or support in the actual structural creation that the law would produce.

In the real world, nuclear power as a commercial source of electricity is dead or dying. In order to put HB 434 into perspective, some of this must be addressed. There is only one single nuclear plant under construction in the U.S. At \$28 billion, the Vogtle nuclear plant in Georgia is so expensive that it will be impossible for the plant to recover its costs. Raising electric rates in central Georgia sufficiently to recover the plant costs will cause customers to stop buying power, to produce their own from rooftop solar, and will send business and industry fleeing the high electric rates that the plant would require.

\$28 billion in cost was increased by a quarter billion dollars in added interest costs for the trivial political purpose of avoiding having the plant go into electric rates during the 2022 election cycle. The current cost of the plant is well over \$12,000 per KW of capacity, making this the most expensive nuclear power in the world. Five other nuclear plants in Western European countries are over \$11,000 per KW. China and South Korea have been building nuclear plants in the range of \$6,000 per KW of capacity. To put this into perspective, U.S. prices for wind and solar farms are under \$1,400 per KW of capacity, and the largest wind farm in the world, a 10,000 MW farm in the Gobi Desert in China has a capital cost of \$875 per KW. This is so low that wholesale costs in China permit this entire plant to be paid off in a single year. China plans to double the size of this particular plant in three to four years.

So it would make sense to assume that the lower cost of Asian nuclear plants is related to the lower cost of labor in those countries, and cannot be translated to the West except by wishful thinking. A recent announcement from the European NuScale promoters made it clear that when they say their nuclear plants are going to cost "half" of what conventional reactors cost, they are talking about half of the \$11,000

per KW cost of reactors like the Hinckley Point C reactor in the United Kingdom, which is expected to be completed in three or four years after more than a decade of construction.

To be as clear as possible, even a capital cost of \$5,000 per KW of capacity makes the delivered power from a nuclear plant three to five times the cost of the same power from a wind or solar farm.

And this cost differential is far greater than would justify the construction of various forms of energy storage needed to make wind and solar generation serve the grid. Except that as long as any large region has more natural gas generation than wind or solar generation, the ability to manage the variable generation from wind and solar is already in place.

We could do the math, but it is perfectly clear that the global capital markets have already done so. Even the Chinese and South Koreans seem to be winding down their nuclear activities. In the meantime, wind and solar generation are approaching half a trillion dollars per year in new investment around the world in 2022. Ohio is losing a healthy share of that due to HB 6, and another \$800 million in potential savings are lost because of the HB 6 termination of the Ohio efficiency programs.

There are some legitimate issues having to do with resolving the decades of radioactive waste at Piketon, the very small issues related to nuclear medical materials – many of which are being eliminated as our radiological techniques improve – and perhaps some needs for the military use of nuclear materials. All of this should be identified clearly enough that enabling legislation has an obvious purpose and a complete lack of avoiding oversight and clarity about the use of funds. HB 434 is not repairable, not in light of the real interests of Ohio citizens, business and industry.

As a matter of fact the failure of the Ohio legislature to repeal any part of HB 6 is superficial evidence that the qualification to judge matters like this is absent from the General Assembly. There are serious risks to be had by passing laws that you do not understand. As of the end of 2021, Michigan had gained 10,000 more clean energy jobs than Ohio compared to 2019, and that tally does not include the loss of the jobs supported by the electric utility efficiency programs, which should widen the gap when the 2022 data is available. Ohio is a manufacturing state, so we benefit from the national expansion of wind, solar and efficiency technology. But refusing to be part of that progress will cost Ohio increasingly over time.

Misinformation provided by other witnesses:

“Nuclear power is reliable”

54% of the French nuclear fleet was out of service in the Summer of 2022, during the energy crisis in Europe. This converted France from a net exporter of 8% of its total electricity, to a 25% shortfall. Whether France managed to do without during the

Summer or contributed to the overall problem in Europe is difficult to parse at this time, but this renders questionable most of the hyperbolic confidence that nuclear advocates want the public to feel about this technology.

“Nuclear power at 2 cents per KWh”

Fact: The Ohio Senate Energy and Public Utilities Committee heard testimony from FirstEnergy Services representatives in 2019 before the misbegotten passage of HB 6 that the company needed 0.9 cents per KWh because its cost of fuel and operation was 4.2 cents per KWh, and that was not low enough to justify the plant’s operation. This ignores the quarter century during which FirstEnergy and its predecessor companies had some of the highest electric rates in the U.S. due to these nuclear plants. In fact the high home foreclosure rate during The Great Recession is directly due to the cost of Davis Besse and Perry nuclear plants which drew more than 2% of the region’s economic product out of the local economies of three major Ohio cities.

Two cents per KWh might be a theoretical fuel cost from a highly efficient process, but it does not include capital cost and it does not include the operational costs of any technology being imagined today.

“No one was harmed by Three Mile Island”

Fact: Turning a \$2 billion asset into a \$6 billion liability in 27 minutes harmed the entire population of Central Pennsylvania. As nuclear plants age the risk of uncontrolled accidents obviously increases.

The implication that any form of nuclear generation which does not increase the risk of terrorist diversion of nuclear materials is one of the more irresponsible pretenses that nuclear power advocates routinely indulge themselves in.