HB6 Testimony Against The Bill

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I am a private citizen who is not affiliated with any lobbying group nor do am I in a position to benefit from passage of this bill via ownership in stocks of any energy company. My husband Stan Durkin is a particle physicist at Ohio State. He is an expert at designing colliders at high energy accelerators and has spent much time at Los Alamos, Brookhaven National Labs, Fermilab, and CERN. He cannot be here today but has read my comments and agrees with what I have written. He has worked with radioactive sources his entire professional career. Prof Durkin would like to submit a copy of "*5 Reason's Why HB 6, Ohio's Nuclear Plant Subsidy Proposal, Should Be Rejected",* May 16, 2019, by Steve Clemmer, Union of Concerned Scientists. (Article follows below.)

As a matter of personal history, my husband and I were living in Philadelphia at the time of the Three Mile Island accident in 1979. We were told to stay tuned to radio and tv news in the event an evacuation was declared. Fortunately, it did not come to that. Had the accident gone the way of Fukushima, my husband and I might not still be around, as there was no practical way of evacuating the large Philadelphia area.

Despite that brush with TMI, for many years thereafter my husbands continued to believe in the promise of nuclear technology until Chernobyl and Fukushima convinced him that the risks were too great.

First, let me start with the positive facts about nuclear energy:

- *Nuclear reactors supply low-carbon energy*.
- *Nuclear reactors can supply a lot of energy.*

However, if that is all true, then why don't we have more nuclear power? This is an important question to ask. If nuclear energy is so useful, why has the use of nuclear power been declining?

- *Nuclear reactions under the worst of situations become uncontrollable when control mechanisms fail.*
- *No active nuclear plant in Ohio has been incident-free in the last 10 years.*
- *Even minor leaks from non-critical failures can contaminate surrounding areas.*

Given all that, the answer to why the use of nuclear is declining in Europe and the U.S. is obvious. The cost to make nuclear safe enough means *it's too expensive*!

That was the conclusion according to an article published in MIT Technology Review, May 28, 2015: "… nuclear safety became the concern after the meltdowns at Three Mile Island and Chernobyl. Meanwhile, cost overruns and delays eroded investor confidence in nuclear projects." … "The economics of the nuclear industry worsened after Fukushima…equipment costs have risen 20 ercent since 2010, in part because of heightened safety requirements-even as low-carbon wind and solar power got cheaper." …. "A 2014 analysis by the financial advisory firm Lazard captures the economics holding back nuclear expansion. Lazard pegs the cost of building nuclear capacity in the United States at $5.4 million to $8.4 million per megawatt. Adding operating, maintenance, and fuel costs yields an average lifetime cost of $92 to $132 for every megawatt-hour generated. That is far above the unsubsidized costs of utility-scale solar power ($72 to $86 per megawatt-hour) and onshore wind ($37 to $81 per megawatt-hour)."

In other words, safety concerns have dramatically increased the costs of building and maintaining nuclear plants to the point where the economics do not justify running them. These costs also do not take into account the cost to decommission a nuclear plant. All nuclear plants must eventually be decommissioned when they reach a certain age. Some get decommissioned sooner when no longer have public subsidies to keep them afloat or if the public loses becomes convinced that the plants pose a serious safety threat.

Exelon's **Three Mile Island Unit 1** is an example of a nuclear plant in need of a public subsidy. During the Ohio House hearings on HB 6 on Wednesday, May 8, an amazing development took place. The headline in **Philly.com** read**:** *"Three Mile Island reactor shutdown to start soon; Exelon says Pennsylvania nuclear rescue is dead."* The gist of the article was: "Exelon Generation and a key sponsor of a $500 million Pennsylvania nuclear rescue bill announced Wednesday that the proposed legislation is dead, and Exelon said it will move forward to shut down its money-losing Three Mile Island reactor this fall. … Exelon Generation, which is headquartered in Kennett Square, was unable to win legislative support in its home state for nuclear energy…The legislation would add a surcharge to customers bills to steer as much as $541 million of subsidies to clean-energy power producers, primarily nuclear generators."

Three Mile Island Unit 2, which is owned by First Energy, has been idle since the infamous TMI accident of 1979. Its nuclear materials have been removed and the unit has essentially been mothballed. The plans stated that no dismantling could be scheduled until Exelon's Unit 1 became decommissioned. Now that such decommissioning of Unit 1 will take place later this year, hundreds of millions of dollars will be required by First Energy in order for to dismantle Unit 2.

First Energy appears to be using the same playbook as Exelon to score subsidies from Ohioans to pay for a money-losing nuclear power plant here. The Ohio legislature faces the same question and Ohio residents ought to demand that their representatives follow Pennsylvania's lead on this type of legislation. Any public subsidy from HB6 to First Energy

should definitely not be used to subsidize dismantling a First Energy nuclear power plant at Three Mile Island. What the Ohio legislators grant a subsidy, it should be used to decommission and dismantle Davis-Besse rather than extend its life because there is no point in avoiding the inevitable: old nuclear power plants will eventually have to be decommissioned and at a great cost to the public. So what's the point in postponing the inevitable?

Shoreham Nuclear Power Plant is an example of a plant that lost the confidence of the public in its surrounding community. It is worthy of mention because Shoreham's closure is a prime example of the public shouldering the cost. After TMI in 1979 and Chernobyl in 1986, safety concerns were raised about Shoreham, which is in a heavily populated area in Long Island on Long Island Sound. In the wake of Three Mile Island the NRC required that operators of nuclear plants work out evacuation plans in cooperation with state and local governments. LILCO was unable to convince Suffolk County officials that the county could be safely evacuated in the event of a major accident. As a result, Shoreham was decommissioned at the great expense of $186 million dollars in 1989 and a 3 percent surcharge had to be added to Long Island electric bills for 30 years to pay off the $6 billion price tag for the plant. Shoreham was later converted to gas generation. One interesting fact is that Shoreham's turbine rotors are now at Davis-Besse, owned by First Energy.

Davis-Besse (First Energy) 2002
According to the NRC, Davis-Besse was the source of TWO of the top FIVE most dangerous nuclear incidents in the US. Corrosion problems discovered in 2002 led to a $5+ million fine against First Energy and a shutdown of Davis-Besse until 2004.

Repairs and upgrades taken during the infamous 2002 shutdown cost an estimated $600 miliion dollars. A description of the hole in the vessel head left only $^3/_8$ inch of stainless steel cladding holding back the high-pressure (~2500 psi) reactor coolant. Had a breech taken place, reactor coolant might have damaged adjacent control rod drive mechanisms, which are essential to shutting down nuclear reactions.

The NRC scheduled extra inspections of Davis-Besse after the plant was restarted due to concerns over the lax safety culture. Despite the upgrades since it's restart, Davis-Besse has had the following safety incidents:

- 2008 tritium leak
- 2010 replacement reactor head problems
- 2011 shield building cracks
- 2012 reactor coolant pump seal pinhole leak
- 2015 steam leak shutdown

To summarize the points I've tried to make:

1. Existing nuclear reactors like the Davis-Besse plant by First Energy use technology that is inherently dangerous and requires constant monitoring and maintenance in order to control nuclear reactions.

2. Because nuclear plants are expensive to build, maintain, and run, many are perpetually losing money.

3. Cheaper alternatives are available from non-carbon emitting technologies like wind and solar.

4. We should instead be investing in cost effective renewable energy source and energy efficiencies.

Thank you for hearing my testimony.
Regards,
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Union of Concerned Scientists
Science for a healthy planet and safer world

[BLOG] UNION OF CONCERNED SCIENTISTS

Photo: Nuclear Regulatory Commission

5 Reason's Why HB 6, Ohio's Nuclear Plant Subsidy Proposal, Should Be Rejected

STEVE CLEMMER, DIRECTOR OF ENERGY RESEARCH, CLEAN ENERGY | MAY 16, 2019, 10:38 AM EDT

Last November, UCS released *Nuclear Power Dilemma*, which found that more than one-third of existing nuclear plants, representing 22 percent of total US nuclear capacity, are uneconomic or slated to close over the next decade. This included the Davis-Besse and Perry plants in Ohio that are owned by Akron-based FirstEnergy Solutions. Replacing these plants with natural gas would cause emissions to rise at a time when we need to achieve deep cuts in emissions to limit the worst impacts of climate change.

When we released our report, my colleague Jeff Deyette described how a proposal backed by FirstEnergy to subsidize its unprofitable nuclear plants in Ohio was deeply flawed and did not meet the conditions recommended in our report. By providing a blatant handout to the nuclear and fossil fuel industries at

the expense of renewable energy and energy efficiency, ironically, the latest proposal to create a "Clean Air Program" in Ohio (House Bill 6) is bad for consumers, the economy and the environment.

Here are five reasons why this proposal is flawed and should be rejected:

1. HB 6 doesn't protect consumers

HB 6 would provide incentives to maintain or build carbon-free or reduced emission resources that meet certain criteria. The state's Legislative Budget office estimates the new program would cost $306 million per year, collected through a dedicated monthly charge on consumer electricity bills. Monthly costs range from $2.50 for a typical residential customer to $2,500 for large commercial and industrial customers.

HB 6 doesn't require FirstEnergy Solutions to demonstrate need or limit the amount and duration of the subsidies to protect consumers and avoid windfall profits as recommended in our report. It simply sets the starting price at $9.25/MWh and increases that value annually for inflation. In 2018, Davis-Besse and Perry generated 18.3 million megawatt-hours of electricity, according to the U.S. Energy Information Administration. This means that ***FirstEnergy Solutions nuclear plants would receive approximately $170 million per year in subsidies***, or 55% of the total. As explained below, the rest of the money would likely go to upgrading Ohio's existing coal and natural gas plants.

2. HB 6 is a bait and switch tactic to gut Ohio's clean energy laws

But here's the rub. HB 6 would effectively gut the state's renewable energy and energy efficiency standards to pay for the subsidies for Ohio's existing nuclear, coal and natural gas plants. It would make the standards voluntary by exempting customers from the charges collected from these affordable and successful

programs unless they chose to opt-in to the standards. This could result in a net ***increase in emissions*** and a net ***loss of jobs*** in Ohio over time.

This political hit job is outrageous, but not at all surprising. It is just another attempt in a long series of efforts by clean energy opponents to rollback Ohio's renewable and efficiency standards over the past five years. When combined with stringent set-back requirements for wind projects that were adopted in 2014, these actions have a had a chilling effect on renewable energy development and explain why ***renewables only provided a paltry 2.7% of Ohio's electricity generation in 2018*** (see figure below). In contrast, renewables provided 18% of U.S. electricity generation in 2018, and wind power provided more than 15% of electricity generation in 11 states.

The sponsors of HB 6 go one step further and make the false claim that their proposal will save consumers money. While the charges appearing on consumer bills might be less, this ignores the much greater energy bill savings consumers have been realizing through investments in energy efficiency. In addition, ***the cost of wind and solar has fallen by more than 70 percent over the past decade***, making them more affordable for consumers and competitive with natural gas power plants in many parts of the country. It also ignores the energy diversity benefits of renewables and efficiency in providing a hedge against natural gas price volatility. Many Ohio legislators continue to put their heads in the sand and refuse to embrace the new reality that renewables and efficiency are cost-effective for consumers.

Energy efficiency programs are especially important for low-income households. By lowering their energy bills, they have more money to spend on food, health care and other necessities. It also reduces the need for assistance in paying heating bills. Unfortunately, legislators like Energy and Natural Resources Committee Chair Nino Vitale are proposing to provide handouts to large corporations at the expense of easing the energy burden for low-income households, which are also disproportionately affected by harmful pollution from

coal and natural gas power plants.

3. HB6 creates a false sense of competition

While renewable energy technologies are technically eligible to compete for funding under HB 6, several criteria would effectively exclude them:

- It excludes any projects that have received tax incentives like the federal production tax credit or investment tax credit, which applies to nearly every renewable energy project.
- Eligible facilities must be larger than 50 MW, which excludes most solar projects, and wind projects have to be between 5 MW and 50 MW, which is smaller than most existing utility scale wind projects in the state.
- Eligible projects must receive compensation through organized wholesale energy markets, which excludes smaller customer-owned projects like rooftop solar photovoltaic systems.

When combined with the rollback to the renewable standard, this absurdly stringent criteria would create too much uncertainty for renewable developers to obtain financing to build new projects in Ohio.

4. HB 6 will increase Ohio's reliance on natural gas

While HB 6 could temporarily prevent the replacement of Ohio's nuclear plants with natural gas, gutting the renewables and efficiency standards would undermine the state's pathway to achieving a truly low-carbon future by locking in more gas generation as coal plants retire. Over the past decade, ***natural gas generation has grown from 1.6% of Ohio's electricity generation to more than 34% in 2018*** (see figure). A whopping 40,000 MW of new natural gas capacity was added during this time, mostly to replace retiring coal plants. In contrast, the share of nuclear and renewable generation has only slightly increased by 2-3% each.

Ohio's Increasing Reliance on Natural Gas for Electricity

While natural gas has lower smokestack emissions than coal, the production and distribution of natural gas releases methane emissions—a much more potent greenhouse gas (GHG) than carbon dioxide. To achieve the deep cuts in emissions that will be needed to limit the worst impacts of climate change, Ohio will need to reduce its reliance on natural gas. Gutting the state's renewables and efficiency standards would take away the most cost-effective solutions for achieving this outcome.

5. HB 6 includes no safety criteria or transition plans

HB 6 does not require FirstEnergy's nuclear plants to meet strong safety standards as a condition for receiving subsidies, as recommended in our report. While Davis-Besse and Perry are currently meeting the Nuclear Regulatory Commission's (NRC) safety standards–as measured by their reactor oversight process (ROP) action matrix quarterly rating system–both plants have had problems with critical back-up systems during the past two years that put them out of compliance.

The nuclear industry has been trying to weaken the ROP for years. For example, the industry has been advocating for combining the first two columns of the action matrix, which would essentially put all nuclear reactors in the top safety category. My colleague Ed Lyman, acting director of the UCS Nuclear Safety Project, is working to stop the NRC from changing the ROP to make it a less meaningful and transparent indicator of plant safety. Our report recommends that policymakers monitor the situation and adjust subsidy policies if the NRC weakens its standards.

HB 6 also does not include any transition plans for affected workers and communities to prepare for the eventual retirement of the nuclear plants. These plans are needed to attract new investment, replace lost jobs and rebuild the tax base.

A better approach

On May 2, House Democrats announced an alternative "Clean Energy Jobs Plan" that would address many of the problems with HB 6. The plan would modify the state's Alternative Energy Standard (AES) by ***increasing the contribution from renewable energy from 12.5% by 2027 to 50% by 2050*** and fix the onerous set-back requirements that have been a major impediment to large scale wind development. It would expand the AES to maintain a 15% baseline for nuclear power. In addition, it would improve the state's energy efficiency standards, expand weatherization programs for low-income households, and create new clean energy job training programs.

This proposal is similar to the laws recently passed in Illinois, New York and New Jersey that provided financial support for distressed nuclear plants while simultaneously strengthening renewable energy and energy efficiency standards. While our report shows that the subsidies for some of these nuclear plants may have been too generous, these policies have prevented plants from closing and resulted in a wave of new investment in wind, solar, and efficiency projects.

With more than 112,000 clean energy jobs in 2018, Ohio ranks third in the Midwest and eighth in the country. Ohio added nearly 5,000 new clean energy jobs in 2018. While most of the clean energy jobs are in the energy efficiency industry, Ohio is also a leading manufacturer of components for the wind and solar industries.

To capitalize on these rapidly growing global industries, lawmakers in Ohio should reject HB 6 and move forward with a real clean air program that ramps-up

investments in renewables and efficiency and achieves the deep cuts in emissions that are needed to limit the worst impacts of climate change.

Posted in: Energy, Global Warming, Nuclear Power Tags: climate-change, energy efficiency, HB 6, natural gas, nuclear power, Ohio, Renewable energy