

HB 6 TESTIMONY

Sandusky, Ohio is my hometown. I left Sandusky right after high school graduation to go to the Naval Academy and then spent seven years in the nuclear submarine force. A career spanning more than 40 years in the nuclear industry followed, half in commercial nuclear and half in the Department of Energy nuclear complex. Obviously, I am a proponent of nuclear power as a source of electricity. Let me explain why.

Our country's standard of living is a function of the Gross National Product (GNP), which is a measurement of the economy's financial vitality. The GNP, in turn, is highly dependent on the availability of reliable and relatively inexpensive electricity. Additionally, we should all want our electricity to come from as environmentally benign sources as possible. Unlike other sources of energy, nuclear power has no impact on the environment in the production of dependable electricity produced on demand. We all should also want our sources of electrical energy to be safe.

No American civilian has ever been harmed by nuclear power generation. No other energy source can make that claim.

However, reliability of energy delivery is the most important factor for our economy. There are many places in the world where electricity is not reliable or it is only available at certain times. Economies cannot thrive under those conditions. Obviously, having electricity that is only available at certain times of day or is not dependable in any respect would be very inconvenient to commercial and residential markets. Reliability of our electricity has always been of the utmost importance to our economy as well as our personal comfort.

Reliability is measured by a term called capacity factor (CF), which is simply the ratio of how much power is actually produced from a given source over a unit of time relative to theoretically what that power source would produce if it operated at 100% full power over the same unit of time. Nuclear power averages a CF between 90% to 95% year in and year out. The next most reliable source of energy is coal at approximately 55% CF. Natural gas CF is usually between 35% to 40%. Wind and solar don't even produce a capacity factor to register. Additionally, wind and solar add to the complexity and cost of electrical grid management.

If we are indeed concerned about our environment, one also needs to examine the ecological impact of wind and solar. It would take a windmill farm stretching from Detroit to Buffalo 1/4 mile deep or a solar panel farm of 8,100 acres to theoretically

replace Davis-Besse Nuclear Station (approximately 900 Megawatts), and it would still not deliver power on demand. Both would inarguably be ecological disasters. Both would rely on rare earth metals imported from China, the mining of which disturbs hundreds of acres of earth. Additionally, both wind turbines and solar panels require extensive and expensive maintenance. There are over 14,000 windmills in the United States standing idle due to the need for repairs, which cannot happen for a variety of reasons.

HB6 is under attack because of alleged misuse of 501c(4) funds raised to promote the passage of HB6. First, we are supposed to be a nation based on the premise presumed innocent until proven guilty. We have seen that vital principle under attack by the Left time after time in the public arena. Regardless, that situation and its eventual resolution, it has nothing whatsoever to do with the underlying principles of HB6. HB6 was passed on its own merits. In its simplest terms, it was the revectoring of some ratepayer's money from subsidizing wind and solar sources of electricity to supporting Ohio's two nuclear plants in these critical times. Wind and solar had, and still have, substantial subsidies coming from the taxpayer via Federal assistance, without which, wind and solar could not compete or exist in an open and free market system.

So regardless of the outcome of the 501c(4) misuse allegations, that outcome provides no reason to revisit HB6. To do so would be illogical and, in my opinion, unethical. In that instance, the first thing one should ask is who is behind the suggestion to even explore repealing HB6. The answer is the same people who opposed it in the first place and spent even more money to defeat it than was raised in support of it. A primary contributor was the American Petroleum Institute (API). And why was that? Because they know that wind and solar as a source of electricity are only available to the electrical grid on an average of less than 30% of the time. The other 70% of the time, due to the fickle nature of wind and solar, those sources have to be backed up by quick starting fossil fuel generators. Quick starting fossil fuel generation is not efficient and uses much more natural gas than natural gas baseload plants as well as increasing carbon emission. As usual, follow the money.

Repealing HB6 and/or shutting down our nuclear plants makes no sense. Can you imagine surviving the Polar Vortex of the winter of 2013-2014 when natural gas was not even available without our two nuclear plants? At the other weather extreme, the recent "heat storm" in California has pushed grid operators to impose rolling blackouts for the first time since 2001. A combination of heavy air conditioning usage to provide residential and commercial cooling, the unplanned unavailability of some power plants, limited options for importing power from neighboring states, and grossly insufficient solar and wind generation have led to an imbalance of electricity generation and consumption. The last time this happened in California, long-held plans to partially deregulate the electrical grid had to be altered and pushed Enron, one of the energy services providers found guilty of gaming electricity markets, into bankruptcy. With non-hydroelectric renewable technologies, mostly solar and wind, generating about 30 percent of California's

electricity today, we are witnessing the types of obstacles and problems that these new technologies introduce. This experience should give renewable energy advocates pause.

California's challenges are exacerbated by the declining availability of reliable, always-on nuclear capacity in the state. In 2012, Southern California Edison closed the San Onofre Nuclear Generating Station, or SONGS, taking 2,200 megawatts off the grid in one fell swoop. The power once generated by SONGS was largely replaced by natural gas, causing a jump in carbon emissions and a squeeze in electric capacity reserve margins. A similar fate now awaits the Diablo Canyon Power Plant, the last nuclear plant in the state. In 2016, Pacific Gas & Electric announced that it would not seek a license extension for Diablo Canyon.

Replacing California's nuclear power plants reveals the difference between modeling a renewable energy future and building one. The Natural Resources Defense Council (NRDC), which pushed to close Diablo Canyon, argued at the time that the plant's electricity would "be replaced with gains in energy efficiency, renewable power, and pollution-free energy technologies." But an initial California Public Utility Commission replacement plan included substantial natural gas capacity. (The NRDC called the plan "deeply flawed.") In 2018, the state Legislature passed a law directing the California Public Utilities Commission to ensure that no greenhouse-emissions increase results after Diablo Canyon shuts down in 2025. How this will all unfold in practice remains to be seen.

Having a discussion about clean energy without including nuclear is worse than specious. It is disingenuous! And it lacks common sense. I appeal to the same good sense that put HB 6 in place to keep it there. Thank you.