AMERICAN PETROLEUM INSTITUTE

Ohio House Public Utilities Committee
The Honorable William Seitz, Chairman

Testimony In Opposition to
House Bill 178

Presented By:
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Chairman Seitz, Vice Chairman Carfagna, Ranking Member Ashford and distinguished members of the Ohio House Public Utilities committee:

My name is Erica Bowman and I am the Chief Economist at the American Petroleum Institute. Thank you for the opportunity to speak to you today in opposition to House Bill 178.

The American Petroleum Institute (API) is the only national trade association representing all facets of the oil and natural gas industry, which supports 9.8 million U.S. jobs and 8 percent of the U.S. economy. The API's more than 625 corporate members include major oil companies to the smallest of independent organizations. They are producers, refiners, suppliers, marketers, pipeline operators, and marine transporters, as well as service and supply companies that support all segments of the industry. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 40 million Americans. In Ohio, API member operations and investments have added billions of dollars in economic value throughout the state and the larger Appalachian region. Our Ohio members have a diverse interest as it relates to this proposal representing leaders in the development, transportation and processing of Ohio's shale gas resources, as well as refineries and retail gas stations which consume a significant amount of energy to operate.

Opening Statement
API supports an all-of-the-above generation approach that includes natural gas, nuclear, coal, wind and solar, provided that markets are allowed to drive generation rather than government mandates and subsidies. To ensure we are working from the same definition of subsidy, per a simple Google search, the definition is as follows, "a sum of money granted by the government or a public body to assist an industry or business so that the price of a commodity or service may remain low or competitive."[1] API opposes subsidies of any kind. We believe customers benefit most when markets are allowed to work free of mandates, riders and special treatment by lawmakers and regulators.

[1] Google, "Definition of subsidy," Retrieved from www.google.com on May 8, 2017.

House Bill 178 would increase electricity prices for Ohio's consumers while driving down demand for natural gas and discouraging investment in new natural gas-fired power generation. This will make Ohio less competitive and discourage job creation.

Competitive Markets Are Working

Competitive electricity markets work, driving down prices for customers. Natural gas-fired power plants have been the most cost-effective form of generation to build and operate. This will likely continue to be true for many years to come. Nuclear generation has become less competitive because of its higher operational costs. Consequently, some utilities like FirstEnergy are seeking legislative approval to raise customers' rates to prop up these uneconomic plants.

As FirstEnergy has stated, both New York and Illinois have passed legislation to subsidize nuclear generation. What they don't tell you is that these out-of-market subsidies are causing great concern among federal regulators and grid operators.

The market monitor for PJM Interconnection (PJM), the organization responsible for operating the thirteen-state power grid region, including Ohio, has become very concerned with the impact nuclear subsidies will have on electricity markets, saying nuclear "subsidies are contagious," and "threaten the foundations" of the grid operator's capacity market and the overall competitiveness of the PJM markets. The market monitor also said nuclear subsidies are "incompatible with the PJM market design, threatens the foundations of the PJM market and interferes with the federal regulatory scheme." PJM's president Andrew Ott has said states that raise customer rates to save uncompetitive generation run the risk of skewing competitive markets.[2]

The Federal Energy Regulatory Commission (FERC) also has concerns with out-of-market subsidies and rate increases, so much so that it recently held a two-day conference to discuss rate subsidization and its potential to skew competitive markets. FERC has said, "Because the wholesale competitive markets, as currently designed, select resources based on principles of operational and economic efficiency without specific regard to resource type, there is an open question of how the competitive wholesale markets ... can select resources of interest to state policy makers while preserving the benefits of regional markets and economic resource selection." [3]

FirstEnergy's own general counsel Leila Vespoli stated it best in her 2011 testimony to this very committee. I'd like to read you a few quotes from her testimony:

"First, with respect to electric generation, competitive markets work. They deliver the lowest price over the long-term to customers, and the proof is undeniable."

"The real problem with subsidized generation is that regulators would be picking the "winners" and "losers" in the energy market. We've been down that road before, and the results weren't pretty."

[2] Monitoring Analytics, LLC, "State of Market Report for PJM: Volume 2: Detailed Analysis," March 2017, https://www.eenews.net/assets/2017/03/10/document_pm_06.pdf

[3] Federal Energy Regulatory Commission, "Docket No. AD 17-11-000," March 2017, https://www.eenews.net/assets/2017/03/10/document_pm_06.pdf

"At a time when Ohio is exploring every opportunity to create jobs and grow our economy, we simply cannot afford similar missteps that would saddle our customers with higher-than-market prices for electricity."

I couldn't agree more with Ms. Vespoli's comments. Competitive markets do work, and subsidies and riders drive up energy costs and discourage investment in newer, more modern generation.

Natural Gas Generation Is Reliable And Flexible

FirstEnergy claims that too much reliance on natural gas endangers grid reliability and that nuclear plants are more reliable since they have many months' worth of fuel located on-site. This directly contradicts PJM's recent system reliability study, which found that natural gas has no limits when it comes to providing a higher share of the grid's electricity generation.[4]

Reliability is derived from a diversity of attributes in generation, not a diversity of fuel sources. PJM's report says that "more diverse portfolios are not necessarily more reliable."[5]

In order to be diverse, generation must be able to ramp up and down quickly to meet sudden changes in demand, provide frequency response and reactive power to maintain grid stability, run consistently at baseload levels, maintain fuel security through storage or transport contracts, possess multiple sources of fuel, and utilize domestically-produced fuel. Natural gas is the only form of generation that meets every attribute category, making it the most diverse and flexible form of power generation.

FirstEnergy cites capacity failures during the Polar Vortex as an example of placing too much reliance on natural gas and the need to provide more revenue to coal and nuclear plants that can store fuel onsite. What they don't tell you is that during each of the Polar Vortex-like events in the winter of 2014[6], coal and nuclear outages, either scheduled or other forced outages, on average, represented 53 percent of all outages. Natural gas generation outages due to fuel unavailability based on interruptible contracts represented, on average, only 17 percent over the same severe weather events.[7] During the Polar Vortex, everyone with a contract got their gas. Problems with natural gas interruptions were a result of interruptible contracts, not frozen pipelines as asserted by proponents of this legislation.

The Polar Vortex was a learning experience for all forms of generation. As a result, PJM developed its Capacity Performance plan which requires generators to be able to deliver energy when emergency conditions exist. Generators are rewarded for meeting the increased standards for deliverability and are penalized when they do not. PJM puts a premium on resources that are dependable and available. As a result, more gas-fired plants have secured firm contracts or added dual fuel capabilities to ensure reliability.

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[4] PJM, "PJM's Evolving Resource Mix and System Reliability," March 2017, http://www.pjm.com/~/media/library/reports-notices/special-reports/20170330-pjms-evolving-resource-mix-and-system-reliability.ashx

[5] Ibid.

[6] Polar Vortex-like events include: January 6th though January 9th, 2014; January 22nd through January 28th, 2014; February 9th through February 13th; and February 25th through February 28th, 2014

[7] PJM, "Response to consumers report," September 2014, http://www.pjm.com/~/media/documents/reports/reference-material/generation-type-and-total-mws-for-outages-bycause.ashx

Natural Gas Prices Will Remain Stable For Years To Come

FirstEnergy says that relying too heavily on natural gas generation leaves ratepayers vulnerable to price volatility. Thanks to the abundance of shale gas, independent sources show this simply isn't true.

The U.S. Energy Information Administration (EIA) projects in their reference case, which includes all existing state and federal regulations and law, as well as incremental technological improvements; there is enough natural gas available in the United States to keep prices at or below $5 per MMBtu through 2040. When using EIA's high oil and gas resource and technology case, natural gas prices are projected to remain below $3.50 per MMBtu through 2040.[8] When looking at actual production versus recent EIA projections, natural gas production has not only been higher than EIA's reference case projections, but has also been closer to or higher than EIA's high oil and gas supply case projections.[9]

To put into perspective just how much recoverable natural gas we have, consider this; in 2016, the entire country consumed 27.5 trillion cubic feet of natural gas. The research firm IHS recently found that over 1,400 trillion cubic feet of natural gas is recoverable at a break-even price of $4 per MMBtu or less, and of that 1,400 trillion cubic feet, 800 trillion cubic feet is available for $3 per MMBtu or less.[10] That's over 50 years of natural gas based on today's consumption levels.

Dramatic increases in natural gas prices occurred before new drilling technologies opened vast new resources of natural gas. Thanks to shale development, natural gas is projected to remain abundant and affordable for decades to come, according to EIA.

Energy Jobs

HB 178 calls for $300 million per year in ratepayer subsidies for 16 years, at a total cost to ratepayers of $4.8 billion. According to FirstEnergy, the Davis Besse and Perry plants employ 1,420 Ohioans.[11] That's a cost of $211,267 per employee per year.

Let's also not forget, in late 2016, FirstEnergy was given permission by the PUCO to raise customers' rates by $204 million per year for "grid modernization" to help stabilize the company's Wall Street rating. Since deregulation was implemented, FirstEnergy has been given over $10 billion in customer rate increases, much of which has been directed to their nuclear facilities to cover their initial capital investment of those assets.[12]

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[8] U.S. Energy Information Administration, "Annual Energy Outlook, 2017 – Natural Gas Supply, Disposition, and Prices," January 2017, https://www.eia.gov/outlooks/aeo/data/browser/#/?id=13-AEO2017&region=0-0&cases=ref2017~highrt&start=2015&end=2050&f=A&linechart=~~ref2017-d120816a.30-13-AEO2017~highrt-d120816a.30-13-AEO2017&sourcekey=0

[9] U.S. Energy Information Administration, Annual Energy Outlooks, 2012-2016; Historical Natural Gas Dry Production, 2012-2016.

[10] IHS, "Shale Gas Reloaded: The Evolving View of North American Natural Gas Resources and Costs," February 2016, http://news.ihsmarkit.com/press-release/north-americas-unconventional-natural-gas-resource-base-continues-expand-volume-and-de

[11] FirstEnergy, "Benefits of Ohio's Nuclear Assets," January 2017, http://media.cleveland.com/business_impact/other/Benefits%20of%20Ohio's%20Nuclear%20Assets.pdf

[12] Office of Ohio Consumers' Counsel, "Re: Legislative Notebook for Utility Issues Affecting Constituents," March 2017, http://www.occ.ohio.gov/lservices/pdfs/legislative-notebook.pdf

We are all sympathetic to jobs and the impact plant closures have on communities. But at what point do we say enough is enough? The question we should be asking is, "What impact will larger electricity bills have on ratepayers, as well as industrial customers and their ability to create jobs?"

FirstEnergy claims that companies are opting to locate in states where electricity markets are regulated because of more certainty with electricity prices. API contends that Ohio's problem isn't its deregulated market; Ohio's problem is that it has not abided by the deregulation plan, and has instead awarded out-of-market riders to subsidize uneconomical generation, making Ohio less competitive than it otherwise could be.

For most industrial customers, energy is their number one cost. Instead of approving rate increases, we should be concerned about the impact increased electricity costs will have on Ohio manufacturing jobs. According to the Ohio Manufacturers' Association, the HB 178 ZEN plan will cost small manufacturers around $90,000 and large manufacturers around $90,000,000 over the 16-year period. Higher energy costs for employers equates to fewer jobs for Ohioans.[13]

Subsidizing nuclear plants will also drive down demand for natural gas and development of new, highly efficient natural gas-fired power plants.

Currently, over 10,000 MW of natural gas power plants are in various stages of development in Ohio, with a few slated to begin operations later this year. These new, highly efficient power plants are a direct result of the shale gas revolution. They will allow us to take advantage of this resource right here at home. Once they are all operational, the plants will use approximately 2 billion cubic feet (Bcf) of natural gas per day. To put that into perspective, Ohio currently produces about 4.2 Bcf per day. Thus, these plants would use nearly half of today's production levels, driving up demand for natural gas and increasing direct and indirect job creation.

Based on a 2012 study by the research firm ICF, for every additional billion cubic feet per day of natural gas produced, approximately 13,000 upstream and midstream direct and indirect jobs are created. When the economic benefits of the end-use of that same natural gas are included, another 2,000 to 8,000 direct and indirect jobs are created. And when induced job impacts are included, between 25,000 and 65,000 jobs are supported.[14]

The metrics from ICF's study are in line with the January 2017 Ohio Department of Jobs and Family Services' Quarterly Shale Report which shows employment in core and ancillary shale-related industries account for over 192,000 Ohio jobs and nearly 14,000 shale-related business establishments spread across the state.[15]

For Ohio to compete for oil and gas related jobs, it cannot make decisions that discourage investment. Higher taxes, burdensome regulations, and subsidies for other forms of generation all deter companies

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[13] RunnerStone, LLC, "Analysis of SB 128/HB 178 – Zero-Emissions Nuclear (ZEN) Credit Program," April 2017, http://www.ohiomfg.com/wp-content/uploads/04-28-17_lb_energy_ZEN-Legislation-Summary.pdf

[14] American Clean Skies Foundation, "Tech Effect: How Innovation in Oil and Gas Exploration is Spurring the U.S. Economy," October 2012, http://www.cleanskies.org/wp-content/uploads/2012/11/icfreport_11012012_web.pdf

[15] Ohio Department of Jobs and Family Services, "Ohio Shale: Quarterly Economic Trends for Ohio Oil and Gas Industries," January 2017, http://ohiolmi.com/OhioShale/Ohio%20Shale%20Report_2Q_2016.pdf

from investing in Ohio. Providing above-market subsidies to nuclear generation puts natural gas at a disadvantage and could diminish job-creating investment by large consumers of energy, including API's Ohio members in the downstream sector of our industry.

Subsidizing Out-Of-State Nuclear Generation
HB 178 allows out-of-state generators to qualify for the ZEN program. The bill would require FirstEnergy ratepayers to purchase 18 million ZEN credits at a price of $17 per ZEN, totaling $300 million per year. According to the U.S. Energy Information Administration, nuclear generation in Ohio has not produced 18 million MWh since 2001. In the past five years, Ohio nuclear plants produced on average 16.7 million MWh. Consequently, ratepayers would need to purchase an additional 1.3 million ZEN credits from out-of-state nuclear resources. At this rate, Ohioans would consistently need to pay $21.5 million per year to out-of-state nuclear resources to comply with the legislation, with the most likely recipient being FirstEnergy's Beaver Valley nuclear facility in Pennsylvania.[16]

FE Plans To Sell These Plants
The bill appears to be written to boost the value of the plants, making them more attractive to a potential buyer. It places a 50 percent penalty on ZEN credits if the plants are sold, but for only two years. Additionally, if the plants were to be sold, distribution utilities would still need to purchase ZEN credits equal to 1/3 of their load, meaning Ohio ratepayers would need to purchase more out-of-state ZEN credits.

Another point of great concern is that the bill seems to almost encourage selling the plants under the financial protection of bankruptcy. The two-year 50 percent penalty for transferring the assets to another company does not apply if the assets are transferred through bankruptcy. The bill reads, "in no instance shall this adjustment apply to a sale or transfer under the United States Bankruptcy Code…"

A year or so from now, after FirstEnergy has sold these plants, ratepayers will be left holding the bag, still making payments to an out-of-state company.

Environmental Attainment Concerns Are Unfounded
FirstEnergy has said that certain Ohio counties could be at risk for falling out of environmental attainment if these plants close. However, according to a recent study by the research firm Ramboll Environ, the loss of Perry and Davis-Besse won't halt that progress at all. The study says, "…even if both nuclear plants were shut down tomorrow, attainment status in Ohio counties will not change…"[17]

The greatest improvements in power plant air emissions are now coming from increases in natural gas-fired generation. In 2014, researchers from the National Oceanic and Atmospheric Administration (NOAA) found that increased use of natural gas-fired power generation has led to a 40 percent reduction in NOx and a 44 percent reduction in SO2 since 1997.[18] Additionally, according to EIA data, more than 60 percent of the CO2 reductions in the electric power sector from 2005 to 2016 have been

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[16] RunnerStone, LLC, "Analysis of SB 128/HB 178 – Zero-Emissions Nuclear (ZEN) Credit Program," April 2017, http://www.ohiomfg.com/wp-content/uploads/04-28-17_lb_energy_ZEN-Legislation-Summary.pdf
[17] Morris, Ralph, and Beardsley, Ross, "Effects of Shut Down of Two Ohio Nuclear Power Plants on Ozone Concentrations using Available Information," Ramboll Environ, March 13, 2017.
[18] J. A. de Gouw, D. D. Parrish, G. J. Frost and M. Trainer, Reduced emissions of CO2, NOx, and SO2 from U.S. power plants owing to switch from coal to natural gas with combined cycle technology, *Earth's Future*, 2, 75-82.

the result of fuel switching from higher emission generation to natural gas generation.[19] As older, less efficient plants retire and new natural gas plants come online, emissions are decreasing without costly mandates.

Even the Edison Electric Institute, the trade association for investor owned utilities, recently stated that emissions will continue to decrease largely because of natural gas, saying, "As of 2015, our industry's carbon dioxide emissions were nearly 21 percent below 2005 levels. Regardless of what major policy initiatives are put in place going forward, our emissions likely will continue to decline due to historically low prices and a stable supply for natural gas, decreasing costs for renewables, and increasing efficiencies."[20]

Do Market Conditions Exist Where HB 178 Makes Sense?

A question has been posed that asks at what price level would natural gas prices have to be for the HB 178 ZEN program to make sense? The answer to this question is that there is no natural gas price level for which the HB 178 legislation makes sense. If natural gas prices are higher, then wholesale power prices will likely also be higher, likely increasing the revenue stream for Ohio's nuclear facilities. If the revenue stream is higher, then a subsidy would likely not be needed to make the uneconomical nuclear plants economical. If natural gas prices are lower, then wholesale power prices will likely also be lower, in which case it does not make sense to subsidize Ohio's nuclear facilities because they are uneconomical and should be retired, so that more efficient and affordable generation is able to take its place.

Conclusion

In conclusion, API is strongly opposed to House Bill 178. It would skew markets by propping up uncompetitive nuclear generation, increase costs for ratepayers and job-creating industries, and discourage investment in natural gas production and gas-fired power plants. Thank you, Mr. Chairman, for allowing us to present our concerns regarding this proposal. I'd be happy to answer any questions from the panel.

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[19] U.S. Energy Information Administration, U.S. Energy-Related Carbon Dioxide Emissions, 2015; Monthly Energy Review, March 2017.

[20] Edison Electric Institute, "Delivering America's Energy Future: Electric Power Industry Outlook," February 2017, http://www.eei.org/resourcesandmedia/industrydataanalysis/industryfinancialanalysis/Documents/Wall_Street_Briefing.pdf