

Testimony by Michael Shellenberger, energy policy analyst, *Time Magazine* “Hero of the Environment,” and President of Environmental Progress

May 16, 2017

Dear Mr. Chairperson, and members of the committee, thank you for accepting my testimony. I am honored to provide it.

I am an energy policy expert and president of Environmental Progress, an independent nonprofit research organization. I am a *Time Magazine* “Hero of the Environment” and Green Book of the Year award winner.

I was opposed to nuclear power for all of my life and only changed my mind after coming to the conclusion that solar and wind are too unreliable to power modern civilization, and that we needed nuclear energy to insure reliable, cheap and clean electricity.

I am here today because I am very concerned by the threat that nuclear plant closures pose to energy security and public health. Without its nuclear plants, the people of Ohio will be more vulnerable to future price hikes, market manipulation and increasing pollution.

Today, Ohio suffers the highest *number* of premature deaths resulting from particulate matter from electricity generation in 2005. If Davis-Besse and Perry close, they will be replaced overwhelmingly by coal and other fossil fuels, and Ohio will likely have the highest death *rate*, too.¹

Let’s consider what can be done to prevent that.

1.

To the extent there is a market for electricity, it isn’t free. Rather, it’s the product of state and federal subsidies and regulations that are mostly out of your hands.

A new analysis by the federal Congressional Budget Office finds that renewables received \$6.3 billion more or 2.4 times what was given to fossil fuels in tax preferences in 2016, and \$10.7 billion more or 55 times what was given to nuclear.²

¹ Caiazzo, F., Ashok, A., Waitz, I. A., Yim, S. H., & Barrett, S. R. 2013. Air pollution and early deaths in the United States. Part I: Quantifying the impact of major sectors in 2005. *Atmospheric Environment*, 79, 198-208.

² Dinan, Terry. Congressional Budget Office. 2017. Federal support for developing, producing, and using fuels and energy technologies. <https://www.cbo.gov/system/files/115th-congress-2017-2018/reports/52521-energytestimony.pdf>

On a unit of energy basis, renewables received over 100 times what was given to nuclear.³ And the CBO data show no subsidies for nuclear between 1985 and 2000, and comparatively small subsidies between 2000 and 2005.

My organization calculates that federal and state subsidies — the latter mainly in the form of net metering — for solar are seven times more per kilowatt hour than the proposed Ohio subsidy for nuclear.⁴

And state energy efficiency subsidies are up to *six times* more per kilowatt hour than the proposed subsidy for nuclear.

What about natural gas? It turns out that [fracking received](#) federal subsidies, too.

In 2011, I was lead author of a history of the hidden government involvement in the fracking revolution. It has since been verified by independent academics, [New York Times](#), [Associated Press](#) and the editor of *Foreign Affairs* in a new book called [The Fix](#).

The Department of Energy funded the first demonstrations of massive hydraulic fracking in the late 1970s. It funded horizontal drilling into Devonian shale, and funded George Mitchell, the father of the shale revolution.

I interviewed Dan Steward, Mitchell's right hand man. He told me, "I'm conservative as hell," but that "[The Department of Energy] started it and other people took the ball and ran with it. You cannot diminish DOE's involvement."

[Between 1978 and 2007](#), the Energy Department spent \$24 billion on fossil energy research that led to the fracking revolution — including \$10 billion in tax credit (US Code Section 29) for unconventional oil and gas drilling.⁵

2.

The biggest subsidy Ohio gives to energy companies comes in the form of extremely low taxes on oil and gas production. If producers were taxed at median tax rates — like those

³ Which is \$17 million per terawatt hour of generation. [This excludes conventional hydroelectric power, which is unlikely to have received significant subsidies](#). Griffiths, B. and King, C.W. 2017. How much does the U.S. government subsidize electricity generating technologies? IEEE Spectrum. <http://spectrum.ieee.org/energywise/energy/policy/how-much-does-the-us-government-subsidize-electricity-generating-technologies>

⁴ Estimated solar subsidies based on a 5kW rooftop solar system in Ohio, with a 20-year lifespan. Included subsidies are Ohio SREC (Solar Renewable Energy Credits), Ohio Sales Tax Credit, Ohio net-metering program, and Federal Investment Tax Credit

⁵ Golden, J.M. and Wiseman, H. 2015. The fracking revolution: shale gas as a case study in innovation policy. <http://law.emory.edu/elj/content/volume-64/issue-4/articles/fracking-revolution-study-innovation-policy.html>

imposed in Texas, Oklahoma and North Dakota — Governor Kasich’s office estimates \$448 million would be raised over two years.

By contrast, Ohio taxes its two nuclear plants 10 times more, per unit of energy generated, than it does its oil and gas producers.

As such, Ohio’s electricity markets are no closer to being “free” than they were in 1999. Ohio’s electricity prices are determined by extensive market manipulation occurring at state and federal levels.

On the one hand, the Ohio House of Representatives says it is against subsidizing any form of energy including energy efficiency. On the other, Ohio legislators voted to give Ohio’s oil and gas industry a retroactive tax break — at a cost of \$265 million.

The bottom line is that tighter supplies will allow more manipulation, not more competition.

Partly that’s because electricity isn’t like other products. If Ohio finds itself entirely dependent on natural gas, it can’t just go build a new nuclear plant; they take at least 10 years to build.

The American Petroleum Institute knows that, which is why it’s spending millions to kill nuclear plants in Pennsylvania and Ohio, and why they are working with solar and wind advocates.

3.

Nearly a quarter century of subsidies for wind and solar have pushed the electrical grid into a crisis of overcapacity and depressed wholesale electricity prices.

If things continue the way they are going, power plants won’t be able to make money selling electricity, and will depend on capacity payments and subsidies for continued operation.

Consider the danger of relying almost entirely on natural gas.

At the end of March, PJM warned that “‘Heavy’ reliance on one resource type, such as a resource portfolio composed of 86 percent natural gas-fired resources... raises questions about electric system resilience...”⁶

⁶ PJM Interconnection, “PJM’s Evolving Resource Mix and System Reliability,” March 30, 2017. <http://www.pjm.com/~media/library/reports-notice/special-reports/20170330-pjms-evolving-resource-mix-and-system-reliability.ashx>

And then there is the issue of attracting job creators, like Amazon.com. Governor John Kasich supports subsidies for wind and solar in the form of the state renewable portfolio standard in order to attract companies like Amazon.

I have spoken with several of the energy buyers at the big tech companies leading me to conclude that it is only a matter of time before nuclear is increasingly counted not only as key for grid resilience but also for its environmental benefits. Last year, Illinois, New York and Google all recognized nuclear for its environmental benefits, and toward achieving their commitments.

4.

Ohio lawmakers need not sit by passively while outside energy, financial and technology interests intervene in your electricity markets in ways that could kill 90 percent of your clean power, and leave ratepayers vulnerable to market manipulators

In the short-term, I encourage you to protect your nuclear assets as clean-air hedges against market power and manipulation.

Ohio ratepayers have benefited from far cheaper electricity rates had there been no shale gas revolution, but cheap natural gas won't last forever. It is irresponsible to imagine it will, or that electricity markets can respond quickly to higher prices.

Long-term, I encourage Ohio to embrace a sensible framework that recognizes the obvious and positive benefits of moving from coal to natural gas, and from both to nuclear.

Ohio legislators with the support and help of Governor Kasich should encourage Amazon and other high-tech companies to end the discrimination against nuclear plants and recognize them for the environmental attributes.

Finally, I encourage legislators to appeal to President Donald Trump and Congress to either make federal subsidies fair, or phase them out altogether.

Until that happens, I urge you not to let your valuable nuclear baseload become the victim of policies outside your control.

Thank you.