

April 16, 2020

To: The Voting Members of the Ohio Power Sit CC: Governor Mike DeWine & Matt Butler, PUCO Public Affairs

Subject: Why to NOT Again Increase the Guernsey Power Station’s Output

Reference: Case Nos. 16-2443-EL-BGN, 18-0090-EL-BGA & 20-0033-EL-BGA

Author

I am a retired Ohio professional industrial engineer with significant education and industrial experience in capital justifications, logistics, plant location and project planning. I have self-educated myself about the basic science and ugly politics of global climate change for over 10 years. I agree with the majority of Americans about wanting a job-producing, greener economy. I also believe in fact-based, pragmatic “what will work best” solutions to comprehensive global climate change, ocean acidification and energy strategies.

Introduction

The purpose of this letter is to highly recommend that you **vote AGAINST** the January 8, 2020 (second) request to increase the output of the huge (USA top 10) natural gas-fired Guernsey Power Station (GPS), which will have NO CARBON CAPTURE and is in its early staging & subterranean grouting phases near Buffalo, OH. The 2 increases total 70+%.

An October 8, 2018 report from the International Panel on Climate Change (IPCC) shows the dire need to roughly halve emissions by 2030 and have net zero emissions by 2050. (The 2018 U.S.National Climate Assessment was also dire.) To achieve that, good decisions are needed worldwide ASAP. Because of this urgent need to boldly reduce greenhouse gas emissions, **the GPS makes little or no environmental, economic or strategic sense.** The greenhouse gases (carbon dioxide and methane which help stoke climate change) from the GPS and associated gas wells / leaky pipelines are certainly **not in the worldwide public interest. Any GPS output will delay adding badly needed zero-emission electricity.**

Based on my presently available knowledge, I think Ohio should rapidly transition to a nuclear - renewable mix for its electric production as follows:

	<u>Dec. 2019</u>		<u>2030 Goals **</u>	<u>Mid-Century**</u>
<u>Coal</u>	3,861 *	37 %	maybe 5 %	0 %
<u>Natural gas</u>	4,580 *	44 %	maybe 35 %	0 %
<u>Nuclear</u>	1,605 *	16 %	maybe 35 %	maybe 65 %
<u>Renewables (wind, solar & hydro)</u>		3 %	maybe 25 %	maybe 35 %

* thousand MWHr

** Dependent on climate, engineering & economic analysis done possibly jointly by M.I.T. & The Ohio State University.

Please note that this document's contents (on energy sources, climate change and ocean acidification) are of vital importance for this particular OPSB case, other OPSB cases, future Ohio legislation / rules and national agencies / legislation.

I hope you agree with the two enclosed March 2020 Columbus Dispatch articles that call for more cooperation to quickly slow the global climate change crisis.

Failed Attempts to Stop the Guernsey Power Station

I addressed climate change and ocean acidification at the August 15, 2017 OPSB/ GPS public meeting at Meadowbrook H. S. Unfortunately, (1) the transcript of my testimony omitted a few key sentences and (2) the entire public meeting transcript seems to have disappeared from the OPSB website. Plus, the October 5, 2017 Case No. 16-2443-EL-BGN Opinion, Order and Certificate for the GPS grossly generalized, falsified and minimized opposition remarks including my detailed climate change ones as "Those that testified in opposition to the project expressed concerns about possible polluting effects created by the facility". **Possible polluting effects vs. the inevitable global climate change impacts ???**

Moreover, future GPS customer American Electric Power Ohio subsequently filed a Feb. 2019 formal complaint with FERC (denied BY A 2 TO 1 VOTE via party lines) because the GPS site is over an abandoned coal mine and has possible flood plain issues. At the time of AEP's complaint, I wrote a letter to FERC citing climate chg. and ocean acidification. FERC Docket No. ER 19-603-001 noted my concerns but deemed them beyond the proceeding's scope. **Unbelievable !!! Public servants???**

The Climate Change and Ocean Acidification Crises

If you are confused about the reality and causes of climate change, the Merchants of Doubt book by science historian Naomi Oresakes, PhD may help you learn about the highly funded, organized misinformation efforts regarding smoking & lung cancer, coal-burning & acid rain, fossil fuels & climate change, etc.

Global climate change has caused the Earth to warm and major weather events to become more frequent and severe. Warmer seawater is making hurricanes more frequent and stronger. Dry areas are becoming drier and wet areas wetter. Historic

glaciers and icecaps are rapidly melting. Lake Erie has less ice and more toxic algae blooms. Sea level rise threatens populous coastal areas like Miami Beach. Forest fires are becoming larger and more frequent. Agriculture (needed for the growing world population) is challenged in multiple ways, which have generated additional government-subsidized farm crop insurance / disaster relief payments. Birds are smaller and less populous. Insects and diseases (e.g Lyme and West Nile) are spreading. People and wildlife are migrating. Etc.

In a nutshell, global climate change is a clear and present danger to all the interrelated elements of life's essentials shown in attached Figure 1.

Greenhouse gases (like carbon dioxide, methane and nitrous oxide) cause global climate change. The temperature graph and "hockey stick curves" in attached Figures 2 & 3 show how both the earth's temperature and the three key greenhouse gases have increased since the Industrial Revolution.

The production and burning of fossil fuels contribute highly to global climate change. Because of methane leaks, venting and flaring, natural gas (hyped as a bridge fuel) is only somewhat better than coal. Substituting natural gas for coal is not a sustainable strategy. Please reference the attachment from the Drawdown book edited by Paul Hawken for better strategies.

Carbon dioxide from the burning fossil fuels causes ocean acidification, which has harmed shellfish, coral and ultimately the entire marine / human food chain.

Sources of Some Notable Climate Change Warnings & Advisories

Scientists and Engineers

- The International Panel on Climate Change Reports and especially the October 8, 2018 IPCC report showing the need for immediate drastic cuts in greenhouse gas emissions
- The Doomsday Clock was advanced in January 2020 to 100 seconds to midnight PM largely because of the threats of global climate change (GCC) and nuclear warfare.
- The U.S. National Climate Assessments issued every 4 years. The last was issued on Black Friday, November 23, 2018.
- Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming

- Legendary former NASA climate scientist James E. Hansen, PhD's 1988 "global warming" warning to the U.S. Senate, his 2009 Storms of My Grandchildren: The Truth about the Coming Climate Catastrophe and Our Last & Our Last Chance to Save Humanity book and his <http://www.columbia.edu/~jeh1/> website
- Gavin Schmidt, PhD (Hansen's successor at NASA-Goddard Institute of Space Studies), his Climate Change: Picturing the Science book and the RealClimate.org site
- Pioneering OSU Byrd Climate Research Center ice paleontologist Lonnie Thompson — The three climate change alternatives are mitigate, adapt or suffer.
- Penn State University climate scientist Michael E. Mann, PhD's developed the CO2 hockey stick curve and communicates via presentations, books, papers and his outstanding <https://michaelmann.net/> website. He says "Climate change is a human problem".
- Civil engineer, former Exxon Chair & Chief Executive and former Secretary of State Rex Tillerson — "Climate change is an engineering problem".
- Climate scientist Donald Wuebbles, PhD at the University of Illinois about agriculture
- Climatologist Katherine Hayhoe, who sometimes writes and speaks about climate change and religion
- Meteorologist / oceanographer Retired Admiral David Titley at Penn State University

Economists

- "The Stern Report" from the World Bank — It is economically better to prevent climate change than suffer from it.
- Jeffrey D. Sachs, PhD, author of The Age of Sustainable Development plus Building the New American Economy: Smart, Fair, & Sustainable and several other books
- The 1,000 + economists that recommend a carbon fee & dividend to help solve GCC

World Leaders

- Pope John Francis's 184 page "Laudato si' praise be to you: on care for our common home" encyclical
- A former U.N Secretary General comparing future climate change to a world war
- President Barack Obama "We need all countries and all hands on deck to solve climate change"
- French President Emanuel Macron, whose country generates 71.7 % of its electricity by nuclear
Who sings a little between my brother and sisterpower
- Nobel prize winner Vice Pres. Al Gore — Climate change is a clear and present danger.

- Kerry, Kasich and Schwarzenegger at the March 8, 2020 bi-partisan Inaugural World War Zero Town Hall in Westerville, which was attended by about 1,000 people.
- Senator Sheldon Whitehouse, who has spoken 250+ times in the Senate about GCC
- Almost all the original 2020 Presidential contenders support the need for climate action.
- Bill Gates — Go nuclear !!!

U.S. Government Agencies

- OMB — Climate change is a threat to the U.S. government.
- DoD — Climate change is a military threat multiplier.

Journalists

- Author and 350.org founder Bill McKibben 3 hello mean50 ppm is the “safe” CO2 level (according to climate scientist James E. Hansen, PhD) that was first exceeded in January 1988
- Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Climate Change book by Naomi Oresakes, PhD
- Dark Money: The Hidden History of the Billionaires Behind the Rise of the Radical Right book by Jane Mayer

Climate Change Deniers & “Merchants of Doubt” (despite overwhelming evidence)

- The Heartland Institute (largely funded by the multi-billionaire Kochs and Mercers)
- Rush Limbaugh and Fox News Channel (founded by multi-billionaire R. Murdoch)
- President Trump ... “Climate change is a Chinese hoax.” “The Paris Agreement is a bad deal.” “I don’t believe the scientists.”
- Senator James Inhofe of OK and author of The Greatest Hoax ... Global Warming book
- Marc Marano, who has worked for both Limbaugh and Inhofe

How many more warnings do we need?

Some Ideas on Why and How to Quickly Transition Ohio’s Electric Production to Zero Emissions Energy

As previously stated, the world needs to dramatically cut its greenhouse gas emissions (which will also reduce air pollution). Ohio needs to do its part to help achieve a job producing green economy for all.

Climate scientist James E. Hansen, PhD, a long-time supporter of nuclear energy and a carbon fee with dividend, has written that green, carbon-free electric production is key

to solving global climate change. Moreover, electric cars and large trucks are now in production.

The Building the New American Economy: Smart, Fair & Sustainable book by Columbia University economist Jeffrey D. Sachs, PhD favors a job producing, greener economy. The enclosed article by Tyler M. Duvelius, Executive Director of the Ohio Conservative Energy Forum, mentions public support and the need to change some Ohio laws to help facilitate renewables, etc.

A lot of green energy studies have been done at Stanford and the Massachusetts Institute of Technology. In about 2017, civil engineer Mark Z. Jacobson, PhD at Stanford wrote papers claiming that the world could run on 100% renewables. He also stated that the estimated cost for the United States would be \$14,000 per person. A graph of his showed escalating costs when the percentage of renewables got above about 60%. Also, there is a problem being able to mine enough raw materials quickly.

In practice, both Texas and Germany have had problems operating with high percentages of wind and solar. Costa Rico is the only country that has 100% renewables (wind, solar and hydropower) — thanks to its geography.

Because of the intermittent and fluctuating nature of wind and solar, some sort of energy storage or a complementary, dependable source of energy is needed. Hydropower and nuclear energy are two zero-emission sources of complimentary, dependable energy.

A few years ago, about a dozen PhD's at M.I.T. were trying to develop state-by-state recommendations for wind-solar-nuclear mixes.

A recent U.S. Department of Energy study focused on a possible 48 state network to distribute electricity especially from sunny and /or windy places.

Coal is more expensive than natural gas. Wind and solar are now fairly competitive with natural gas. If the social costs of carbon (like medical costs) are included, existing nuclear beats natural gas.

Historically, nuclear has been much safer than coal. Senator Corey Booker say any serious climate plan has to include nuclear power. A few years ago, 25 nuclear plants were being built in China with half on schedule. Russia's Rosatom is a growing nuclear contractor competing against Westinghouse, etc.. A large nuclear plant built by a South Korean recently started operation in petro-rich Abu Dabi, United Arab Emirates. Google News has several recent articles about small nuclear reactors, which have several advantages (over the older large reactors) including smaller size, standardized design, faster construction times, faster response to varying loads,, etc. NuScale and Rolls Royce are two of several firms with small nuclear reactors. See the enclosed bi-partisan article "US must 'reassert global leadership' in nuclear energy or lose out to Russia and China' by Sen. Mike Crapo and Sheldon Whitehouse with 250+ climate speeches in the Senate.

Michael Bloomberg has done much to help reduce climate change via his twelve year NYC mayorship, years as U.N.Special Envoy for Climate Change, C40 Cities Climate Leadership Group, donating to the Sierra Club's Beyond Coal and Beyond Dirty Fuels programs, donating the recent United States climate change share to the U.N., other climate philanthropy, etc. If elected President, he would convene a G-20 meeting to solve the climate change crisis. Bloomberg has supported nuclear in the past and probably still does. BLOOMBERG IS NOW SUGGESTING THAT CONSTRUCTION BE STOPPED ON ALL NEW NATURAL GAS-FIRED POWER PLANTS.

Because of global climate change, the Guernsey Power Station might only operate for ten years — probably far too short for favorable economics but long enough to impede Ohio's transition to a greener economy.

Summary

Climate change and ocean acidification are clear, present and growing emergencies threatening all the essentials of life for ourselves, our children and our grandchildren. Paths exist to minimize the problems but we all need to work together. Please take a small step by voting NOT to approve another increase for the Guernsey Power Station's output, which would further harm the environment and delay a greener economy (both contrary to both U.S. and global public interests).

We're the last generation that can stop further climate change before its tipping points are triggered! Everyday should be Earth Day! There is no Planet B! Leadership, science, technology, engineering and mathematics matter!

I will virtually attend your 3/16 meeting and I welcome your questions, comments and NO VOTES !!!

Sincerely,
D. Albertson

P.S. #1 Some say "Leave all fossil fuels in the ground". I tend to agree but say we still need coal and natural gas for steelmaking, heat treating and selected other manufacturing processes.

P.S. #2 Some say "Ban horizontal drilling and fracking". I say let's try to limit our petroleum applications to essentials (e.g. disposable plastic medical items), continue to use economical fracking, use available new technology to stop environmental-disposable-entally-unfriendly venting / flaring and impose significant fines on any violators

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1. Kerry, Kasich and Schwarzenegger hosting climate town hall Sunday — March 7, 2020 Columbus Dispatch On-Line
2. Editorial: United front needed on climate change by the Columbus Dispatch Editorial Board on March 12.
3. Opinion: Renewable-energy production leads the Ohio renaissance by Tyler M. Duvelius, Executive Director of the Ohio Conservative Energy Forum ... March 8, 2019 Columbus Dispatch On-Line
4. Global climate change affects every element in the hierarchy of life's essentials

HEALTH PEACE

FOOD CLOTHING SHELTER (ALL PLANT BASED)

WATER SOIL AIR FAVORABLE TEMPS.

ENERGY SOLUTIONS TO GLOBAL CLIMATE CHANGE *

Rank	Solution	Rank **
<i>0</i>	<i>Refrigerant Management</i>	<i>1</i>
1	Wind Turbines (Onshore)	2
2	Solar Farms	8
3	Rooftop Solar	10
4	Geothermal	18
5	NUCLEAR	20
6	Wind Turbines (Offshore)	22
7	Concentrated Solar	25
8	Wave and Tidal	29
9	Methane Digesters (Large)	30
10	Biomass	34
11	Solar Water	41
12	In-Stream Hydro	48
13	Cogeneration	50
14	Methane Digesters (Small)	64
15	Waste-to-Energy	68
16	Micro Wind	76
17	Energy Storage (Distributed)	77
17	Energy Storage (Utilities)	77
17	Grid Flexibility	77
18	Microgrids	78

* From p. 224 of Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming (edited by Paul Hawken)
Rank out of 100 energy and non-energy solutions

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NATURAL GAS IS NOT A SOLUTION TO GCC !!!-

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Summary: Public Comment of D. Albertson, via website, electronically filed by Docketing Staff on behalf of Docketing