

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application Seeking)	
Approval of Ohio Power Company's)	Case No. 14-1693-EL-RDR
Proposal to Enter into an Affiliate Power)	
Purchase Agreement for Inclusion in the)	
Power Purchase Agreement Rider)	

)	
In the Matter of the Application of Ohio)	Case No. 14-1694-EL-AAM
Power Company for Approval of Certain)	
Accounting Authority)	
)	

**DIRECT TESTIMONY OF
EDWARD W. HILL
ON BEHALF OF THE
OHIO MANUFACTURERS' ASSOCIATION ENERGY GROUP**

September 11, 2015

1 **Introduction, Purpose, and Summary of Conclusions**

2 **Q. Please state your name, title, and business address.**

3 A. My name is Edward W. Hill. I am Professor of Public Affairs and City and
4 Regional Planning and a member of the Faculty of the Discovery Theme in
5 Materials and Manufacturing for Sustainability at The Ohio State University's
6 Glenn College of Public Affairs and College of Engineering. I recently retired as
7 the Dean of the Maxine Goodman Levin College of Urban Affairs at Cleveland
8 State University and Professor of Economic Development on June 30, 2015. My
9 business address is 310P Page Hall, 1810 College Road, Columbus, Ohio 43210.

10 **Q. Please describe your educational background, professional qualifications,**
11 **and employment experience.**

12 A. I graduated from the University of Pennsylvania with a bachelor's degree in
13 economics and urban studies. I then attended the Massachusetts Institute of
14 Technology where I earned a master's degree in City and Regional Planning and a
15 Ph.D. in Economics and Regional Planning. My doctoral field examinations in
16 economics were in industrial organization and regulation, labor economics, and
17 urban and regional economics. In the Department of Urban Studies and Planning,
18 my examinations were in regional economic development.

19 I was a member of the Cleveland State University faculty since 1985. In addition,
20 I was a Non-resident Senior Fellow at the Brookings Institution's Metropolitan
21 Policy Program and Adjunct Professor in Public Administration at South China
22 University of Technology for three years. I was also a Non-resident Visiting

1 Fellow at the Institute of Government Studies at the University of California at
2 Berkeley for five years, ending in 2013.

3 I was appointed Cleveland State University's first Vice President of Economic
4 Development in 2005. I relinquished that title in 2009 when I was appointed
5 Dean of the Levin College.

6 I was the inaugural chair of the National Institute of Standards and Technology's
7 Manufacturing Extension Partnership's National Advisory Board. I served in that
8 capacity from 2007 until 2010. I continued to serve on that Board until my term
9 statutorily expired in 2014.

10 I have also served on Ohio's Urban Revitalization Task Force (appointed by
11 Governor Taft), Auto Industry Support Council (appointed by Governor
12 Strickland), Cooperative Education Advisory Commission (appointed by Speaker
13 Batchelder), and the Manufacturing Task Force (appointed by Director Schmenk).

14 My research has focused on the areas of urban and regional economic
15 development policy, the operation of regional labor markets, and industry studies
16 with an emphasis on manufacturing. My research has a particular emphasis on
17 issues that are important to the state of Ohio's economy.

18 I have written one book and am completing my second. I have edited five books,
19 written eight book-length reports, and have authored over 90 articles, book
20 chapters, and columns. I was the editor of *Economic Development Quarterly*
21 from 1994 to 2005. *Economic Development Quarterly* publishes peer-reviewed

1 research that is relevant to the development and renewal of the American
2 economy.

3 I participated in much of the energy research conducted at the Levin College
4 either as an advisor or as an investigator. I led the research and writing of the
5 publication titled *Ohio Utica Shale Gas Monitor* and was one of the authors of *An*
6 *Analysis of the Economic Potential for Shale Gas Formations in Ohio* (February
7 2012).¹ I also advised the research team that produced the reports on the
8 electricity market that are referenced in this submittal.

9 **Q. What is the purpose of your testimony?**

10 A. I am testifying on behalf of the Ohio Manufacturers' Association Energy Group
11 (OMAEG). My testimony addresses the proposal of the Ohio Power Company
12 (AEP-Ohio) to enter into a new affiliate power purchase agreement (PPA)
13 between AEP-Ohio and AEP Generation Resources, Inc. (AEPGR) and to collect
14 the net costs associated with the PPA from ratepayers through the PPA Rider
15 (AEP-Ohio's Proposal).² Similar to another utility's proposal discussed below, I
16 believe that AEP-Ohio's Proposal is misguided, and the Public Utilities
17 Commission of Ohio (PUCO or Commission) should reject it.

¹ See, e.g., Edward W. Hill, et al., "Ohio Utica Shale Gas Monitor" (January 10, 2014) at http://engagedscholarship.csuohio.edu/urban_facpub/1143/; Thomas, Andrew R., Iryna Lendel, Edward Hill, Douglas Southgate, and Robert Chase, "An Analysis of the Economic Potential for Shale Gas Formations in Ohio" (February 2012) at http://engagedscholarship.csuohio.edu/urban_facpub/453/.

² AEP-Ohio's Amended Application at 1-2 (May 15, 2015), superseding and replacing AEP-Ohio's original Application (October 3, 2014).

1 My testimony also addresses whether and how the Commission's findings in the
2 recent AEP-Ohio Order should be considered in evaluating AEP-Ohio's Amended
3 Application in this proceeding.³ In the AEP-Ohio Order, the Commission listed
4 several factors that AEP-Ohio should, at a minimum, address in any future filing
5 requesting future cost recovery associated with a PPA.⁴ The Commission also
6 stated that it will balance, but will not be bound by, the delineated factors in
7 deciding whether to approve future cost recovery requests associated with PPAs.
8 Those factors were listed as follows: financial need of the generating plant;
9 necessity of the generating facility, in light of future reliability concerns,
10 including supply diversity; description of how the generating plant is compliant
11 with all pertinent environmental regulations and its plan for compliance with
12 pending environmental regulations; and the impact that a closure of the generating
13 plant would have on electric prices and the resulting effect on economic
14 development within the state.⁵ In addition, the PUCO indicated that the rider
15 proposal must address additional issues, including a proposed process for a
16 periodic review and audit of the rider and an alternative plan to allocate the rider's
17 financial risk between both the utility and its ratepayers.⁶

³*In the Matter of the Application of Ohio Power Company for Authority to Establish a Standard Service Offer Pursuant to R.C. 4928.143, in the Form of an Electric Security Plan*, Case No. 13-2385-EL-SSO, et al., Opinion and Order at 25 (February 25, 2015) (AEP-Ohio Order).

⁴ AEP-Ohio Order at 25.

⁵ Id.

⁶ Id.

1 **Q. Please briefly summarize your conclusions.**

2 A. AEP-Ohio's strategy to utilize a power purchase agreement as a massive subsidy
3 from ratepayers to fund AEP-Ohio's non-regulated subsidiary's uneconomic
4 electric generating units is flawed. Such a Proposal, if implemented, would
5 fundamentally distort the electricity wholesale energy markets.⁷ It would shift
6 the financial risk of operating generation plants onto AEP-Ohio's ratepayers,
7 placing the risk of market failure squarely on AEP-Ohio's distribution consumers.
8 This would fundamentally undermine the intent of the Ohio General Assembly
9 when it restructured Ohio's electricity markets in 1999 with the passage of Am.
10 Sub. S.B. 3.

11 Research conducted at the Levin College shows that in 2010, Ohio had the highest
12 level of manufacturing activity among the Midwestern states.⁸ Ohio's energy-
13 intensive industries are prominent parts of the state's economic base; these include
14 primary metals, petroleum and coal products, chemicals, food processing,
15 nonmetallic mineral production, paper manufacturing, and wood products. AEP-
16 Ohio's Proposal would have significant negative effects on the manufacturing
17 productivity of firms throughout these sectors.

18 The Proposal would also undermine competition among retail electricity
19 customers in Ohio, and would have a chilling effect on future investments into

⁷ For example, see Sanzillo, T. and C. Kunkel, "FirstEnergy: A Major Utility Seeks a Subsidized Turnaround," Institute for Energy Economics and Financial Analysis (October 2014) at <http://www.ieefa.org/wp-content/uploads/2014/10/First-Energy-A-Major-Utility-Seeks-a-Subsidized-Turnaround-OCT20141.pdf> (Attachment EWH-1).

⁸ Lendel, I, S. Park and A. Thomas, "Moving Ohio Manufacturing Forward: Competitive Electricity Pricing" (2013) at 4-7. *Urban Publications*, Paper 679 at http://engagedscholarship.csuohio.edu/urban_facpub/679 (Attachment EWH-2).

1 Ohio markets by Competitive Retail Electric Service (CRES) providers and other
2 generator owners.

3 Furthermore, the Proposal will extend and exacerbate the ongoing threat to Ohio's
4 economy and environment. It is designed to shore up coal-based electricity
5 generation at a time when it is becoming increasingly uneconomical due to both
6 the age of the plants and the introduction of large supplies of methane as an
7 alternative fuel source. At the same time, regulations designed to reduce the
8 amount of carbon released into the atmosphere from coal-fired power plants are
9 on the horizon. All of these factors will further increase the relative cost of
10 generating electric power from coal when compared to electricity generated from
11 other sources of fuel, especially natural gas. The Proposal is also being made at a
12 time when oil prices have plunged and as global energy markets are shifting
13 toward methane—natural gas.

14 The proposed PPA does not satisfy the Commission's AEP-Ohio factors as AEP-
15 Ohio has failed to demonstrate that the 20 generating units⁹ are necessary to
16 address reliability and supply diversity concerns or that the generating units will
17 actually close if financial assistance through the PPA is not provided. The PPA is
18 also not in the public interest as the generating units are not necessary to further
19 economic development in the region and will negatively affect manufacturers and
20 businesses that are important to the vitality of the region.

⁹ Direct Testimony of Pablo A. Vegas at 12 (May 15, 2015).

1 Asking ratepayers to subsidize a strategy for maintaining uneconomic generation
2 is a genuinely bad idea. Regulation needs to encourage an electricity generating
3 market that is not being distorted, does not reward market power, and moves the
4 state of Ohio toward economic efficiency. AEP-Ohio's Proposal is not the right
5 strategy to meet these goals.

6 **Q. Have you previously filed testimony before the PUCO?**

7 A. Yes, I have filed several pieces of testimony in Case No. 14-1297-EL-SSO
8 regarding a similar proposal by Ohio Edison Company, The Cleveland Electric
9 Illuminating Company, and The Toledo Edison Company (collectively,
10 FirstEnergy), seeking a subsidy from ratepayers to fund FirstEnergy's unregulated
11 affiliate's uneconomic generating units through a power purchase arrangement.

12 **Q. Are your conclusions in the FirstEnergy proceeding different from this**
13 **proceeding?**

14 A. No. My concerns in this proceeding regarding AEP-Ohio's request to enter into
15 an affiliate power purchase agreement between AEP-Ohio and AEPGR are
16 parallel to the concerns raised in the FirstEnergy proceeding pending before the
17 PUCO. Therefore, my testimony and conclusions are similar, if not identical, in
18 many respects.

19 **Effects of the PPA Proposal on Manufacturing**

20 **Q. What role do energy prices play in economic development?**

21 A. We have long known that electricity prices play a significant role in economic
22 development. For instance, there is evidence that the best manufacturing jobs are

1 usually found in energy-intensive industries, which tend to require higher-skilled
2 workers.¹⁰ Similarly, it has been documented that energy costs are an important
3 site selection criteria for manufacturers; along with the location of customers,
4 suppliers, and labor supply.¹¹

5 **Q. How do you define energy intensive industries?**

6 A. Energy intensive industries are those that spend relatively large amounts of
7 money on energy in the course of their operations compared to other
8 expenditures. The research conducted at the Levin College's Urban Research
9 Centers by Lendel, et al., specifically examined intense users of electricity. The
10 team used two indicators to identify electricity-intensive industries: the ratio of
11 the industry's expenditure on electricity to the industry's total expenditure on its
12 operations, and the industry's total expenditure on electricity.

13 The team demonstrated that natural break points occurred in both data series. The
14 breaks resulted in three groups of industries: high electricity-intensive, moderate
15 electricity-intensive and non-electricity intensive.¹² The results are consistent

¹⁰ L. Lord and J. Ruble, "A Case for Coordinating Economic Development Planning with Energy Planning," 7.2 *South Carolina Journal of International Law and Business* 165, 173 (2011).

¹¹ Id. at 165; see also D. Buelow & J. Trkulja, "Factoring Energy into a Location Decision," *Area Development Magazine* (April/May 2009) at <http://www.areadevelopment.com/corpSurveyResults/Apr09/energy-availability-costs-location-decision001.shtml> (survey determining energy costs are the third most important factor in manufacturing site selection).

¹² See Attachment EWH-2 at 4-7.

1 with the categories established by the Energy Information Agency for energy
2 intensive manufacturing.¹³

3 In Ohio, ten industries are considered to be electricity intensive (spending roughly
4 2 to 6% of every dollar of its industry operations). Atop this list are metals,
5 chemicals, foundries, food processing, paper manufacturing, glass manufacturing,
6 and nonmetallic mineral product manufacturing.¹⁴

7 **Q: What role do these industries play in Ohio's economy?**

8 A. These industries are a critical part of Ohio's economic base. Our research shows
9 that many of these industries export their products from Ohio in return for dollars
10 that are brought into the state, resulting in job creation.¹⁵

11 Steel manufacturing, for instance, is about three times more important in Ohio
12 than it is nationally, foundries and glass manufacturing about 2.5 times, and
13 chemicals nearly twice.¹⁶ All are related to the automotive and truck assembly
14 and aircraft supply chains, which are especially important industrial clusters in the
15 state of Ohio. These and similar industries are a major part of our export base,
16 and they stand to be hurt the most by AEP-Ohio's Proposal.

¹³ Sendich, E. "The Importance of Natural Gas in the Industrial Sector with a Focus on Energy-Intensive Industries," Working Paper Series, U.S. Energy Information Agency (February 28, 2014) at http://www.eia.gov/workingpapers/pdf/natgas_indussector.pdf.

¹⁴ See Attachment EWH-2 at 4.

¹⁵ This is a result that is replicated in many studies conducted on Ohio's economy at the Center for Economic Development at the Levin College of Urban Affairs.

¹⁶ See Attachment EWH-2 at 10.

1 **Q. Have you considered what likely effects the AEP-Ohio Proposal may have on**
2 **manufacturing?**

3 A. Yes. The study conducted in 2013 by Lendel, et al., examined the gross state
4 product created per employee and measured how it changed with the cost of
5 electricity between 1990 and 2010. This gave an indication of the effects of
6 electricity price on productivity. Their results showed that higher electricity
7 prices have had a statistically significant negative effect on manufacturing
8 productivity in Ohio, as well as in four neighboring states.¹⁷

9 **Q. Did you measure the size of this effect?**

10 A. Yes. The study showed that an increase of one cent per kilowatt-hour correlated
11 to a decrease in gross product generated of about \$2,527 per employee, a total of
12 2.2%.¹⁸ In economic terms, this is a price elasticity of negative 2.2%. This will
13 be felt most keenly within the electricity-intensive industries.

14 **Effects of the PPA Proposal on Electricity Markets**

15 **Q. Did Lendel, et al., also look at the effects of deregulation on manufacturing?**

16 A. Yes. They looked at industrial power prices for five states for the period of 1990-
17 2010, two of which had not restructured their power generation markets (Indiana
18 and Kentucky) and three of which had (Ohio, Michigan and Pennsylvania).

¹⁷ Id. at 30-31.

¹⁸ Id.

1 **Q. What were the findings?**

2 A. Manufacturing productivity grew faster in the deregulated states than it did in the
3 regulated states. Manufacturing gross product grew by \$120,000/employee over
4 the twenty-year period for the deregulated states, but only by \$113,000/employee
5 in the regulated states. [All figures are in inflation-adjusted terms.] In the three
6 deregulated states, the average industrial price of electricity dropped after
7 deregulation and the average total productivity per employee increased.¹⁹

8 **Q. What does this mean?**

9 A. It means that, at least in part, the 2001 restructuring of electricity regulation that
10 was designed to introduce competition in the electricity markets has been working
11 to reduce costs to Ohio consumers, and to make Ohio manufacturing more
12 competitive.

13 The energy markets may be flawed in places, and they require constant vigilance
14 on the part of state and federal regulators to ensure that large utilities do not enjoy
15 too much market power and that power is reliably provided across the footprint of
16 the relevant grid, which in Ohio's case is PJM's territory. But the evidence, at
17 least in Ohio and the surrounding states, is that a competitive electric market has

¹⁹ Id. at 31-32.

1 helped to reduce industrial costs of electricity.²⁰ This in turn has helped energy
2 intensive industries in Ohio to be more competitive.

3 **Q. How is this relevant to AEP-Ohio's PPA Proposal?**

4 A. AEP-Ohio's strategy provides AEP-Ohio's affiliate, AEPGR, with a guaranteed
5 return on its generating assets. The strategy directly undermines the competitive
6 nature of the retail market for electricity in Ohio. It does this by introducing
7 subsidized generation into both the energy and the capacity markets, thereby
8 distorting those markets, and potentially driving lower cost generation out of the
9 market.

10 The effectiveness of a competitive marketplace relies upon the assumption that it
11 is free of monopolistic practices by the participants. The strategy proposed by
12 AEP-Ohio, to reintroduce certain aspects of traditional utility accounting practices
13 into the energy and capacity markets, is fundamentally incompatible with a free
14 marketplace.

15 It also sends the wrong message to CRES providers, national providers that have
16 over the years established a major presence in Ohio. The message it sends is that
17 the moment that they begin to out-compete Ohio's incumbent utility providers

²⁰ This conclusion was also reached in the recent econometric study released by COMPETE: O'Connor, P. and O'Connell-Diaz, E., "Evolution of the Revolution: The Sustained Success of Retail Electricity Competition," COMPETE Study (July 2015) (Attachment EWH-3). The study analyzed the comparative performance of 13 states and the District of Columbia against the inflation-adjusted price of electricity for all customer classes in the 35 states that did not deregulate electricity generation. The authors refer to the deregulated 14 as Consumer Choice jurisdictions and the regulated 35 as Monopoly jurisdictions. Of particular interest is the performance of deregulated Illinois as compared to its regulated neighbor Wisconsin. Illinois had the lowest rate of price increase from 1997 to 2014 (15.2%) while Wisconsin had the highest rate of increase (105.5%), giving new meaning to "On Wisconsin." (See Attachment EWH-3, Figure 10 at 7 and Appendix at 16).

1 (and/or their affiliates) and to establish market share in this state, the State will
2 step in and shore up the incumbent providers (and/or their affiliates) to the CRES
3 provider's detriment. This will have a chilling effect on future CRES provider
4 investment into Ohio.

5 Subsidizing a generation owner that is affiliated with an electric distribution
6 utility will destabilize the structure of the electricity markets in Ohio. Prior to any
7 attempts to re-regulate, the State needs definitive proof that deregulation is not
8 working. After such proof, if the State decides to re-regulate, it should regulate
9 the entire industry in the process, not just piecemeal generating facilities based
10 upon plant inefficiencies or generator owners' threats of closure. The evidence to
11 date indicates that market restructuring is working,²¹ and changing the rules
12 without a clear and convincing demonstration otherwise will send a signal that
13 will strongly discourage investment in the state.

14 **The Effects of AEP-Ohio's Proposal on Ohio's Economy in General**

15 **Q. Do you see any other problems with AEP-Ohio's proposed PPA?**

16 A. Yes. First of all, the Proposal would subsidize nine coal-fired generating units
17 owned, in whole or in part, by AEPGR.²² It would also provide subsidies to

²¹ Id. O'Connor and Diaz showed that as a group, the average weighted price for all customer classes in the 13 deregulated states and the District of Columbia fell against inflation, while the price rose in the 35 regulated states. Additionally, the Consumer Choice jurisdictions added 74,000 megawatts of summer capacity and had greater capacity factors than the regulated jurisdictions (see Attachment EWH-3 at 8-9). All 14 Choice jurisdictions were net importers of power in 1997 and had what the authors termed "full resource adequacy" in 2013. O'Connor and Diaz note that the "five states of the industrial Upper Midwest offer a compelling intra-regional example of the success of Consumer Choice, with the competitive states Illinois and Ohio outperforming the Monopoly States of Indiana, Michigan, and Wisconsin with lower price trends and greater generation efficiency." (See Attachment EWH-3 at 2, 15).

²² Direct Testimony of Pablo A. Vegas at 12 (May 15, 2015); Direct Testimony of Kelly D. Pearce Testimony at 6-7 (May 15, 2015).

1 eleven OVEC units owned, in part, by AEP-Ohio.²³ In so doing, it ignores a
2 fundamental problem facing Ohio in the coming years: carbon regulation. On
3 August 3, 2015, the Environmental Protection Agency issued the Clean Power
4 Plan Final Rule, which issues emission guidelines for states to follow in
5 developing plans to reduce greenhouse gas emissions from existing fossil fuel-
6 fired electric generating units. Specifically, the EPA establishes the following in
7 the Clean Power Plan Final Rule: 1) CO₂ emission performance rates representing
8 the best system of emission reduction for two subcategories of existing fossil fuel-
9 fired EGUs – fossil fuel-fired electric utility steam generating units and stationary
10 combustion turbines; 2) state-specific CO₂ goals reflecting the CO₂ emission
11 performance rates; and 3) guidelines for the development, submittal and
12 implementation of state plans that establish emission standards or other measures
13 to implement the CO₂ emission performance rates, which may be accomplished
14 by meeting the state goals.²⁴

15 On the same day that the EPA issued the Clean Power Plan Final Rule, it also
16 issued a proposed Federal Plan for implementation of the Clean Power Plan.²⁵
17 EPA would implement the Federal Plan in any state that does not submit an
18 approvable plan.²⁶

²³ Id.

²⁴ See Clean Power Plan Final Rule – Regulatory Impact Analysis, available at <http://www2.epa.gov/sites/production/files/2015-08/documents/cpp-final-rule-ria.pdf>.

²⁵ See Proposed Federal Plan and Proposed Model Rules, available at <http://www.epa.gov/airquality/cpp/fs-cpp-proposed-federal-plan.pdf>.

²⁶ Id.

1 Since electricity generation in Ohio is heavily reliant upon coal generation, either
2 plan would likely lead to a redistribution of economic activity away from Ohio to
3 other states. What will make this redistribution especially painful is that what are
4 most vulnerable are the keystones of our most important industrial clusters in the
5 transportation industries—automotive, truck, aerospace, and locomotive—and our
6 paint and chemical industries. These all support long supply chains that stretch
7 across the state.

8 While some larger operations may pick up and leave, small and mid-sized
9 companies will lose business to out-of-state competitors and go out of business. It
10 is better for Ohio to develop a plan that responds to the EPA requirements, yet at
11 the same time protects jobs in this state.

12 Ohio may have already made one tool for compliance with the Clean Power Plan
13 unavailable through the process of freezing its energy efficiency and renewable
14 portfolio mandates. Ohio is currently in the process of re-evaluating those
15 mandates. Now is the worst possible time for ratepayers to subsidize inefficient,
16 old coal plants. Ohio’s policymakers need to consider strategies for Ohio to
17 navigate both carbon emissions reduction and the aging coal-based power
18 generation in Ohio as part of a thorough, evidence-based strategy for the way to
19 react to the reality of proven large methane deposits in the Appalachian Basin,
20 impending carbon regulations, together with a review of the energy efficiency and
21 renewable portfolio mandates.

1 **Q. What other problems do you see?**

2 A. In general, bailing out old, failing legacy industries is counterproductive. We
3 should be very careful when we do so, and we should apply what has been learned
4 in other industry bailouts over the past several decades. There must be a clear
5 reason to expect that subsidies will turn around a company, not just revert to the
6 *status quo*.

7 AEP-Ohio's ratepayers already paid over \$150 million in subsidized electricity
8 costs for Ormet Corporation's plant in Hannibal, Ohio, only to have Ormet file for
9 bankruptcy. For the good of the regional economy, it is usually better to find a
10 humane and promising strategy for change than to prop up old, failing legacy
11 industries.

12 **Q. But bailouts worked for the automobile and steel industries, did they not?**

13 A. Yes, but the devil is in the details. We have to apply lessons learned in previous
14 publicly-supported industry restructurings.

15 There never should be a simple bailout; that is, a return to the *status quo* after
16 either providing an operating subsidy or in just restructuring debt. Subsidizing
17 operating costs will eventually fail, as it did in Ormet's case.

18 Cleveland's steel mills had to experience bankruptcy and reorganizations to get
19 their operating costs right.²⁷ Among the painful changes felt by one steel mill
20 were major rewriting of shop floor work rules and staffing levels, accompanied by
21 dumping pension obligations to the federal government, and changing wage

²⁷ See "Steel in Cleveland," *Plain Dealer* archives at
<http://blog.cleveland.com/pdgraphics/2009/03/07FGSTEEL.pdf>.

1 levels. All of this was after corporate bankruptcies. After the last bankruptcy, the
2 new owner of the steel mill invested heavily in new capital equipment and
3 processes improvements taking advantage of modern work rules and lower
4 operating costs, resulting in an extremely efficient operation.

5 Lessons from the bankruptcy of the domestically headquartered automotive
6 assembly industry are similar. The restructuring was national, and its initial costs
7 were borne by the national economy, not one state. Second, the companies were
8 allowed to shed their legacy assets, outdated and abandoned assembly and parts
9 plants, and to restructure their work rules, operating agreements, and labor costs.
10 And, in the case of two companies, there were corporate bankruptcies.

11 Whenever companies are bailed out without requiring major behavioral change,
12 an act of corporate lemon socialism has been committed. And, the most likely
13 outcome is the recreation of the failed business model that created the necessity
14 for bailout in the first place. This is what happened with Ormet, this is what
15 happened to LTV's properties, this is the history of the Detroit-headquartered
16 automotive companies, and this is exactly what the Ohio utilities are asking for
17 now.

18 Specifically, AEP-Ohio is asking the PUCO to return to a business model for one
19 aspect of the business that not only previously failed, but to return to a model for
20 which Ohio ratepayers have already paid AEP-Ohio more than \$600 million to

1 change.²⁸ Ohio ratepayers paid this fee as compensation for "stranded assets" that
2 AEP-Ohio incurred as a result of restructuring of the electric market. Those
3 stranded assets included generation facilities that were divested to an affiliate.
4 Now AEP-Ohio wants to put old wine into new bottles and incur the
5 inefficiencies of "cost plus" accounting for generation assets after previously
6 collecting \$600 million to change its behavior.

7 It is important to note that I am not stating that power purchase agreements of this
8 nature should never be allowed, or that social issues can never be a consideration
9 for imposing riders or charges on distribution customers. For instance, power
10 purchase agreements can, in principle, be very useful in helping distributed
11 generation get off the ground in Ohio, as long as they are for a limited duration
12 and are treated as industrial-scale feasibility experiments. Distributed generation
13 promises to affect all aspects of electricity production and consumption:
14 generation, transmission, distribution, capacity, and environmental. So in some
15 cases it might make sense for ratepayers to fund a long-term arrangement in order
16 to finance distributed generation and test its purported efficiencies. However,
17 such projects are the opposite of what is proposed by AEP-Ohio.

²⁸ See, e.g. "Electricity: Ohio Restructuring Active," U.S. Energy Information Agency at 2 (September 2010) at <http://www.eia.gov/electricity/policies/restructuring/ohio.html>; J.L. Migden-Ostrander, "A History of Deregulation, Senate Bill 3 and Current Situation," at 2-3 (November 14, 2007) at <http://www.occ.ohio.gov/lservices/testimony/2007-11-14.pdf> (noting that the generation portion of stranded costs were designed to permit the utility to recover its uneconomic investments in power plants); and Attachment EWH-1 at 29.

1 **Q. Will throwing away the costs sunk into old generation disrupt Ohio's**
2 **economy by requiring investment into expensive new generation?**

3 A. No. First of all, we cannot be certain that AEP-Ohio's affiliate, AEPGR, will
4 discard its generation assets by retiring the units. If either AEP-Ohio or AEPGR
5 believes, as claimed, that market prices will eventually rise above the costs set
6 forth in a power purchase arrangement, AEPGR will do what it can to keep these
7 plants operational, even if at reduced capacity.

8 Second, in a restructured market, we need to remember that Ohio is part of the
9 PJM Interconnection (PJM) region when it comes to generation, and that PJM is
10 the region's grid operator and reliability coordinator. In this regard, there is
11 ample generation in the PJM region to meet Ohio's generation requirements for
12 the foreseeable future.²⁹

13 Third, perhaps most importantly, we cannot allow sunk costs to confuse us about
14 the value proposition of keeping old plants functioning when they are no longer
15 profitable. Indeed, this is a critical reason for not subsidizing aging, inefficient
16 generation: it discourages the building of new, cleaner, more efficient generation
17 that will cost less in both the short and long run.

²⁹ See Testimony of Andrew Ott on Behalf of PJM Interconnection before the Ohio Energy Mandates Study Committee at 3-5 and Attachment at 3-7 (March 18, 2015) (Attachment EWH-4); see also PJM Interconnection, "2018/2019 RPM Base Residual Auction Results" at 8-10, 23-26 (August 21, 2015, updated August 28, 2015) (Attachment EWH-5).

1 **Q. What are the relevant submarkets that exist in the generation and**
2 **consumption of electricity?**

3 A. There wholesale energy markets for generation, capacity, and ancillary services.
4 These electrical generation components are competitively procured. The
5 transmission and distribution systems are regulated.

6 The discovery of extremely large deposits of methane, or natural gas, in Ohio,
7 West Virginia, Pennsylvania, New York, and the province of Ontario will lower
8 barriers to entry in the generation market and continue to disrupt existing models
9 for base load generation.

10 Additional technologies and practices should be encouraged to continue to
11 diversify the supply of electric generation capacity and regulatory barriers to their
12 entry should be removed. This is especially true for cogeneration, the entry of
13 power from outside the state of Ohio, and for alternative sources of power that
14 have proven to be cost competitive, such as solar.

15 At this point in time, the transmission and distribution of electric power is a
16 natural monopoly and should be regulated as such. However, in the future,
17 competition may be feasible in the transmission portion of the industry as
18 technologies change. Nonetheless, the distribution system will always be
19 operated by either a monopoly or a duopoly and will need to be regulated. The
20 distribution system can transform from a monopoly system to a duopoly when
21 natural gas utilities provide gas to households and commercial buildings that
22 contain fuel cells and then bring surplus power back into the distribution system.

1 However, fuel cells are not yet cost competitive for this particular market
2 disruption.

3 Professor Jean Tirole was awarded the Nobel Prize in economics for his work on
4 market power and regulation and has addressed the issues surrounding a
5 monopolized distribution network.³⁰ By analogy, his work demonstrates that
6 having competitive markets in the generation of electricity coupled with regulated
7 distribution networks is the optimal way to organize these markets. In other
8 words, treat them as separate markets and regulate the portion where market
9 power exists.

10 Restricting the purchase of power to a limited number of sources owned by one
11 company is antithetical to the competitive operation of the market. Locking out
12 other forms of generating capacity and new technologies will result in higher
13 costs to consumers.

14 **Q: What are the implications for the case before us?**

15 A: The AEP-Ohio Proposal will thwart the separation of these distinct product
16 markets and will result in the judgment of regulators being substituted for market
17 forces. This is after nearly 15 years of evidence that market forces work well in
18 the allocation of generating capacity and at a time when new sources of
19 generating capacity can enter the market.

³⁰ Tirole's work is summarized in the technical brief to the Nobel Prize committee: "Jean Tirole: Market Power and Regulation" (October 13, 2014) at http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/2014/advanced-economicsciences2014.pdf.

1 Expanding the definition of capacity is called for; removing barriers for
2 cogenerated power from entering the transmission system need to be lowered;
3 artificial barriers to accessing power generated outside of the state should be
4 removed; and industrial-scale feasibility experiments in carbon-free and lower
5 carbon sources of energy production should be encouraged.

6 The power market is heading toward a distributed system of generation with
7 sources of power coming from technologies that are currently being perfected.

8 The implication is that the distribution system will be critical to Ohio's energy
9 future because that future will be one of distributed generation tied into a smart
10 transmission grid.

11 **Q: What is the implication for the generation companies and for public policy?**

12 A: First, the future of the current electric distribution utilities lies in their
13 transmission and distribution systems, not in their legacy generation facilities.
14 Second, the financial implications of the future of legacy generation plants will
15 dominate the business strategies and behaviors of the electric distribution
16 companies, which will be to the detriment of the future of Ohio's economy. If
17 these companies are crippled financially by their legacy costs they will
18 aggressively use politics and regulation to defend their interests. They will
19 behave like a frightened dog that is backed into a corner.

20 The solution to this eventuality lies in broadening the scope of regulation and
21 changing the solution. We have to recognize that stranded electric generating
22 assets are not Ohio's problem, Pennsylvania's problem, or West Virginia's

1 problem. It is a regionally concentrated national problem brought on by changes
2 in technology and resource costs that have disrupted the traditional way that
3 electricity is generated in the United States. If the states that produce the power
4 try to resolve the legacy cost problem on their own, power costs will escalate in
5 ways that will be detrimental to their economic futures and resistance to the
6 resolution will delay its implementation.

7 Those who benefited are those who both produced and consumed the electricity.
8 To deal with the problem of production states, the footprint for the solution can be
9 best approximated by the territory of PJM. This is the territory of those who
10 benefited from both the production and consumption of power. (The same
11 argument can and should be made for the other interconnects.)

12 The orderly resolution of legacy power plants should rest with an organization
13 that acts in much the same way as a “bad bank” did in the resolution of the
14 savings and loan crisis, the financial meltdown associated with the Great
15 Recession, and the legacy costs of the Detroit-headquartered automobile assembly
16 companies. The assets should be transferred into the bad bank and the costs of the
17 resolution be borne by ratepayers across the entire footprint.

18 **Q. As a major employer in central Ohio, should the health of AEP-Ohio, the**
19 **electric distribution utility, be a consideration in subsidizing these plants**
20 **through a power purchase agreement?**

21 A. Possibly, but the electric distribution utility’s health has not been raised as an
22 issue in these proceedings.

1 **Q. Does AEP-Ohio’s PPA Proposal satisfy the AEP-Ohio factors set forth by the**
2 **Commission?**

3 A. No. The proposed PPA that requires AEP-Ohio to purchase all of the power from
4 nine uncompetitive generating plants owned by their affiliate, AEPGR, is not in
5 the public interest because the plants are not necessary to further economic
6 development in the region and will negatively affect manufacturers and
7 businesses that are important to the vitality of the region. Additionally, the
8 enactment of the PPA will most likely deter market entry by new and more cost-
9 efficient generators. The lack of entry is a much larger long-term economic threat
10 to power reliability and competitive pricing than is posed by denying the proposed
11 PPA.

12 The price paid to AEPGR will include the cost of fuel and any plant upgrades.³¹
13 It appears that AEP-Ohio’s affiliate will also earn a return on the capital invested
14 as was true under the old regulatory regime.³² The output from the generating
15 units will be sold into the regional wholesale market. If it is sold at a loss (costs
16 exceed revenues), the loss will be passed on to all customers in AEP-Ohio’s
17 service territory through the PPA Rider. If it is sold at a profit (revenues exceed
18 costs), that profit will be distributed to customers through the PPA Rider. One of
19 AEP-Ohio’s projections demonstrates that there will be no profit through 2024,

³¹ Direct Testimony of Kelly D. Pearce, Attachment Exhibit KDP-1 at 2-3 (May 15, 2015).

³² Id.

1 charging customers approximately \$927 million for the first nine and a half years
2 of the PPA.³³

3 AEP-Ohio asserts that its Proposal preserves the competitive market because
4 customers are allowed to shop for their generation supply from alternative
5 suppliers (or other generators).³⁴ This assertion is incorrect and it is where AEP-
6 Ohio's regulatory protection appears. The PPA prevents a completely free market
7 from evolving.

8 Under the Proposal, if the plants covered by the PPA are operating at a loss (i.e.,
9 revenues received in the market are lower than the costs to operate the plants), the
10 loss or net costs to operate the plants will be allocated to all of AEP-Ohio's
11 customers, including those who chose to shop, thereby removing part, or all, of
12 the differential between AEP-Ohio's affiliate price and that of its competitors.
13 This dynamic will have two negative outcomes. First, it will deter new entrants to
14 the power generation market because the PPA will narrow their cost advantage.
15 Second, competitors will look at the PPA as a precedent, and as increasing
16 portions of AEPGR's generating capacity become uncompetitive, competitors
17 will expect continued efforts to place the uncompetitive generating assets under
18 the protection of the regulatory umbrella, which will turn the pricing disadvantage
19 into a negative feedback loop: the more uncompetitive the affiliated generating
20 capacity, the larger the fraction that falls under additional PPAs, the more
21 significant the assessment that is passed on to customers, and the narrower the

³³ Direct Testimony of Kelly D. Pearce, Attachment Exhibit KDP-2 at 1 (May 15, 2015).

³⁴ Direct Testimony of Steven M. Fetter at 10 (May 15, 2015).

1 pricing advantage new competitors will have. This set of expected events will
2 increase the perceived risk of investing in competitive generating assets, will deter
3 competing investment, and will lead to higher electricity costs for consumers than
4 would have occurred under a free market with no regulatory barriers to entry.
5 These are the impacts anticipated in the event that the Proposal is approved.

6 **Q. Has AEP-Ohio demonstrated the financial need of the nine AEPGR**
7 **generating units or the OVEC generating units?**

8 A. No. AEP-Ohio states that its forecasts indicate that the generating units are
9 *potentially* at risk.³⁵ When properly assessing a generation unit's financial
10 viability, the only costs that should be considered are avoidable costs. AEP-Ohio
11 has not argued that there has been any market failure; instead, AEP-Ohio merely
12 asserts that these generating units need subsidies in the near term in order to
13 remain competitive pending an anticipated rise in energy costs.

14 The assertion of price recovery in one to three years is puzzling for a number of
15 reasons. First, the price of fuel stocks has shifted greatly since the PPA was first
16 proposed—in ways that further disadvantage the power plants in question.
17 Second, the proven reserves of natural gas in the state of Ohio, in neighboring
18 Pennsylvania, and in West Virginia has grown over this time period, and the
19 infrastructure to deliver local sources of natural gas to markets has grown.
20 Finally, not only has the price of natural gas dropped over the intervening time
21 period nationwide, but prices reported out of the Dominion South Hub in West

³⁵ Direct Testimony of Kelly D. Pearce at 31 (May 15, 2015).

1 Virginia are below that in the Texas and Louisiana Hubs, including the Henry
2 Hub.³⁶

3 **Q. From an economic standpoint, does it make sense to continue operating all of**
4 **the nine generation plants?**

5 A. Not if the business continues to lose money as a business owner will not continue
6 investing cash into a business that is losing money. By extension, therefore,
7 ratepayers, who have no ownership interest in an electric generating company,
8 should not be expected or required to invest cash in a business that is losing
9 money, whether or not the business may be profitable in the future. In Ohio,
10 generation has been deregulated. It must compete with other generation in the
11 marketplace. AEP-Ohio is asking the Commission to award its affiliate a subsidy
12 to support its generation when this would be contrary to the express intent of the
13 Ohio General Assembly.³⁷

14 **Q. Does promoting supply diversity necessitate that the nine AEPGR generating**
15 **units, and the OVEC generating units, remain in service?**

16 A. The promotion of supply diversity does not require that the nine AEPGR plants
17 and the OVEC units remain in service. To be diverse means to be “of or relating
18 to different types.”³⁸ Ohio’s power supply mix will not be less diverse if the

³⁶ See Natural Gas Intelligence, http://www.naturalgasintel.com/data/data_products/daily?region_id=south-louisiana&location_id=SLAHH.

³⁷ See generally, Chapter 4928, Revised Code; see also, Section 4928.02(H), Revised Code (“It is the policy of the state to [e]nsure effective competition in the provision of retail electric service by avoiding anticompetitive subsidies flowing from a noncompetitive retail electric service to a competitive retail electric service or to a product or service other than retail electric service, and vice versa, including by prohibiting the recovery of any generation-related costs through distribution or transmission rates”).

³⁸ Black’s Law Dictionary (Bryan A. Garner ed., 8th ed., West 1999).

1 plants are retired. Ohio and, in fact, AEP-Ohio's service territory will still be able
2 to be served by coal, nuclear, natural gas, renewable, and other generation sources
3 in the event that the plants do not remain in service. What is vitally important in
4 this case is having the PUCO both allow and encourage existing generators and
5 potential investors in new generating capacity to respond to market signals about
6 the fuels and technologies to be used. The PUCO should not inhibit potential
7 investors' response to these signals, especially for the extremely long time period
8 that is contained in this application

9 **Q. At this point, do you believe that the nine generating units, and the OVEC**
10 **generating units, are at risk of being retired *before it is economic to do so*?**

11 A. No. The data presented indicate that continued operation of the plants is not
12 economic. If AEP-Ohio believes, as they have argued, that these plants will, in
13 the long run, be able to produce power at a cost that is below market, AEPGR will
14 not shut the plants down in the near term. AEP-Ohio should have no interest in
15 prematurely shutting down assets that are likely to prove valuable. Furthermore,
16 given AEPGR and AEP-Ohio's partial ownership in the generating plants, it is not
17 clear that AEP-Ohio or AEPGR will even be able to close the plants, at least not
18 unilaterally. If, on the other hand, AEP-Ohio believes that the plants will never
19 be competitive, they will shut them down, as they should.

20 Market logic dictates that if the price earned from the plants in question has a high
21 probability of recovering over the near term (a three-year period), AEP-Ohio
22 should be able to sell bonds or other long-term financial instruments to underwrite

1 the short-term losses in return for longer-term gains to investors. Avoiding a test
2 of this proposition by sophisticated investors and instead looking for relief by
3 having consumers assume the risk makes the argument presented suspect on its
4 face.

5 **Q. Has AEP-Ohio soundly estimated the economic impact to electric rates if the**
6 **generation units included in the PPA are closed?**

7 A. No. As I discuss previously, there is a direct correlation between higher electric
8 prices and manufacturer productivity. If the cost of electricity is increased
9 relative to costs in competing regions in order to fund the PPA Rider, then
10 manufacturing in Ohio will suffer.

11 **Q. Has AEP-Ohio reasonably demonstrated the effect on economic development**
12 **in Ohio if the nine generation plants are closed?**

13 A. No. AEP-Ohio's results do not properly capture the economic impact of closing
14 the plants in question, because they offer only a partial view of the economic
15 impacts. This is true for each plant threatened to be closed. Additionally, given
16 AEPGR's small ownership interest in several of the generating units,³⁹ it is highly
17 unlikely that AEP-Ohio or their affiliate will be able to cause the generating units
18 to close.

19 There are three significant problems with this type of analysis:

³⁹ Direct Testimony of Kelly D. Pearce, Attachment Exhibit KDP-1 at 7 (May 15, 2015).

1 (1) Geography. The impact analysis is restricted to the geographic region of the
2 generating plants in question. If the interest is just in these limited geographic
3 areas, the results are best depicted as community development impacts, not
4 economic development impacts. The Commission should consider the impact of
5 the suggested policy change on the economy of Ohio. This impact should include
6 not only the effect on those businesses and people who supply the power plant
7 with goods and services, but on those entities who ultimately purchase power from
8 the plant or who subsidize its operations. The impact on the state of Ohio should
9 use either the state's geography or the geography of the region affected by changes
10 in the price of power.

11 (2) Effects are Limited to the Supply Chain. AEP-Ohio only partially captures the
12 impacts of expenditures on the supply chain of the industry in question and on the
13 supply chains of the supplier industries, including households. An alternative
14 would be to construct a row-standardized input-output model of the economy. A
15 row-standardized model would be one that demonstrates the impact of changes in
16 the operation in question on the industries that use the product or the material
17 produced. These are the plant's customers. The impact on the supply chain is one
18 thing; the impact on the customers, however, is very different. With a commodity
19 such as electricity, the dominant economic impact will be on energy users.
20 Accordingly, you cannot know the true economic impact of closing the plants in
21 question until you understand the impact of price changes on power users.

22 (3) Substitution Effects. When prices increase or decrease, customers will shift
23 their patterns of purchasing. Think of a fixed coefficient input-output model as a

1 cake recipe. If you want two cakes, you double the recipe; if you want three cakes,
2 you triple the recipe, etc. But power usage is not like a recipe from Betty
3 Crocker's cookbook. Operators will change the mix of ingredients based on their
4 prices and, in the case of power, they shift regularly between generating plants and
5 investments and disinvestments based on the relative cost of the fuel. AEP-Ohio
6 did not capture substitution effects or the price sensitivity of the customers on the
7 plants in question.

8 AEP-Ohio's analysis is flawed. The geography is too narrowly drawn to
9 understand the economic impact on the state of Ohio. AEP-Ohio did not include
10 economic impacts on those who purchase the power or subsidize the plants'
11 operations. AEP-Ohio did not consider substitution effects. AEP-Ohio also
12 overestimated the impact of cutbacks in localized, or induced, spending. At best,
13 AEP-Ohio's analysis captures a partial view of the economic impact of the closing
14 of the power plants in question. I do not find the results to be definitive.

15 **Q. Has AEP-Ohio reasonably demonstrated the effect on economic development**
16 **in Ohio if one or more OVEC generating units are closed?**

17 A. No. Given AEP-Ohio's small ownership interest in the OVEC generating units, it
18 is highly unlikely that AEP-Ohio or their affiliate will be able to cause the OVEC
19 generating units to close due to their actions alone. Additionally, one of the OVEC
20 units is not even located in Ohio. The Commission has also held in the AEP-Ohio

1 case that sufficient evidence did not exist with regard to the OVEC units and
2 providing a PPA to AEP-Ohio to subsidize such plants.⁴⁰

3 **Q. Has AEP-Ohio advanced an alternative plan to allocate the PPA Rider's**
4 **financial risk between AEP-Ohio and its ratepayers?**

5 A. No, AEP-Ohio did not include an alternative plan to better allocate the risk
6 between it and its ratepayers.

7 **Conclusion**

8 **Q. What is your overall recommendation for the PUCO with regard to AEP-**
9 **Ohio's PPA Proposal?**

10 A. I recommend that the PUCO reject AEP-Ohio's request for a power purchase
11 agreement with its affiliate to subsidize AEPGR's aging, inefficient power plants.

12 **Q. Does this conclude your testimony?**

13 A. Yes, but, given the expedited schedule in this matter and lack of receipt of timely
14 discovery responses by AEP-Ohio, I reserve the right to supplement my testimony
15 as new information and data becomes available.

⁴⁰ See AEP-Ohio Order at 23, 25.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and accurate copy of the foregoing document was served on September 11, 2015 by electronic mail upon the persons listed below.

/s/Kimberly W. Bojko
Kimberly W. Bojko

stnourse@aep.com
mjsatterwhite@aep.com
Christopher.Miller@icemiller.com
cmooney@ohiopartners.org
dboehm@BKLawfirm.com
dconway@porterwright.com
dwilliamson@spilmanlaw.com
fdarr@mwncmh.com
ghull@eckertseamans.com
glpetrucci@vorys.com
haydenm@firstenergycorp.com
mhpetricoff@vorys.com
jeffrey.mayes@monitoringanalytics.com
jfinnigan@edf.org
jkylerecohn@BKLawfirm.com
jlang@calfee.com
Jodi.bair@occ.ohio.gov
joliker@igsenergy.com
Werner.margard@puc.state.oh.us
Steven.beeler@puc.state.oh.us
Katie.johnson@puc.state.oh.us
Kurt.Helfrich@ThompsonHine.com
mdortch@kravitzllc.com
mfleisher@elpc.org
mjsettineri@vorys.com
mkurtz@BKLawfirm.com
mpritchard@mwncmh.com
msmalz@ohiopovertylaw.org
mswhite@igsenergy.com
myurick@taftlaw.com
ricks@ohanet.org

sam@mwncmh.com
scasto@firstenergycorp.com
schmidt@sppgrp.com
Scott.Campbell@thompsonhine.com
Stephanie.Chmiel@ThompsonHine.com
talexander@calfee.com
tdougherty@theOEC.org
tobrien@bricker.com
todonnell@dickinsonwright.com
tony.mendoza@sierraclub.org
William.Michael@occ.ohio.gov
william.wright@puc.state.oh.us
twilliams@snhsllaw.com
Kevin.moore@occ.ohio.gov

1325-001.636841

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

9/11/2015 5:04:20 PM

in

Case No(s). 14-1693-EL-RDR, 14-1694-EL-AAM

Summary: Testimony (Direct) of Edward W. Hill on behalf of the Ohio Manufacturers' Association Energy Group electronically filed by Ms. Rebecca L Hussey on behalf of OMAEG