

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

**In the Matter of the Application of Duke)
Energy Ohio, Inc., for Approval of a)
General Exemption of Certain Natural) Case No. 21-0903-GA-EXM
Gas Commodity Sales Services or)
Ancillary Services)**

**In the Matter of the Application of Duke) Case No. 21-0904-GA-ATA
Energy Ohio, Inc. for Tariff Approval)**

**In the Matter of the Application of Duke)
Energy Ohio, Inc., for Approval to) Case No. 21-0905-GA-AAM
Change Accounting Methods)**

**DIRECT TESTIMONY OF PAUL A COOMES, Ph.D.
ON BEHALF OF
THE RETAIL ENERGY SUPPLY ASSOCIATION**

September 7, 2022

1 **Q.1. Please state your name, title and business address.**

2 **A.1.** My name is Paul Coomes. I am a consulting economist and Emeritus Professor of
3 Economics at the University of Louisville College of Business. My business address is 3604 Trail
4 Ridge Road, Louisville, Kentucky 40241.

5 **Q.2. On whose behalf are you testifying?**

6 **A.2.** I am submitting this testimony on behalf of the Retail Energy Supply Association
7 (“RESA”).

8 **Q.3. Please describe your educational background.**

9 **A.3.** I received a bachelor’s degree in economics from Brescia University. I earned a master’s
10 degree in economics from Indiana University in Bloomington and a Ph.D. in economics from the
11 University of Texas at Austin.

12 **Q.4. What is your professional background?**

13 **A.4.** I am Emeritus Professor of Economics at the University of Louisville, where I taught from
14 1985 through 2012. A copy of my bio is attached to this testimony as Exhibit PAC-1. As a
15 professor, I taught courses in urban economics, forecasting, microeconomics and
16 macroeconomics. I have also worked on contract research projects for many public and private
17 entities. Much of my research for both academic and commercial interests has involved regional
18 and urban economics and economic development. Over the course of my career, I have performed
19 hundreds of studies using economic impact models to quantify economic and fiscal impacts for
20 large commercial entities as well as for public agencies, departments, economic development
21 organizations and utilities in Ohio and Kentucky and throughout the country. As a consultant, I
22 have analyzed consumers’ responses to price changes due to changes in Kentucky tax policies

1 regarding wine and spirits sales in the state. I am a past president of the Kentucky Economic
2 Association, and past chair of the Economics Department at the University of Louisville.

3 **Q.5. Have you previously testified before the Public Utilities Commission of Ohio?**

4 **A.5.** Yes, though it was over a decade ago, involving an industrial electricity rate case.

5 **Q.6. Are you familiar with these proceedings?**

6 **A.6.** Yes, in general. I have conducted a general review of the application in this proceeding
7 and reviewed the proposed bill formats in the application.

8 **Q.7. What is the purpose of your testimony?**

9 **A.7.** I provide a high-level discussion of how consumers respond to price changes including
10 how I believe consumers will react to the price to compare bill message that Duke Energy Ohio is
11 proposing in its application in this proceeding. My testimony starts with a general discussion on
12 price elasticity and I then translate that to consumer sensitivity on a price to compare message.

13 **Q.8. What is price elasticity?**

14 **A.8.** Economists use the term ‘price elasticity’ to measure how consumers (or producers) change
15 their consumption (or production) of a good or service when the price changes. In the case of
16 demand price elasticity, it is measured as the percentage change in quantity consumed divided by
17 the percentage change in price.

18 So, if a ten percent increase in the price of a good leads to a two percent decrease in quantity
19 consumed, we say that the demand price elasticity is -0.2. The negative sign is understood for
20 demand studies, and economists typically just use the absolute value (ignore minus sign). Results
21 of less than one mean that the good is *inelastic* with respect to price, i.e., relatively insensitive. In
22 that case, when producers raise their price they will see an increase in revenue since the price
23 increase is proportionately greater than the loss in units sold. If the elasticity were greater than

1 one we say the good is *elastic* with respect to a price change. In that case, when producers raise
2 their price they will see a loss in revenue since the reduction in units sold is proportionately greater
3 than the price increase. The concept can similarly be applied to price reductions.

4 The most important determinant of the demand price elasticity is the availability of substitutes.
5 For example, consider several gasoline stations at a busy interstate highway interchange. If the
6 Shell station posted a price ten cents above the price at the BP station, cars would flock to the BP
7 station. In that case the demand price elasticity is very high – the Shell station would lose revenues
8 if its price got out of line. The gas stations are careful to keep their prices closely aligned, and try
9 to compete on other factors, such as clean bathrooms, selling convenience foods, and easy access
10 from the interchange.

11 By contrast, rather than thinking in terms of brands of gasoline, consider the overall market for
12 gasoline. If all gasoline stations raised their price by one dollar a gallon, as we saw earlier this
13 year, there is not much most consumers can do to substitute. In the short run, they have to use
14 their existing vehicle to get to work, school, shop, and recreate. Consumers can take fewer trips,
15 carpool, use public transportation, or turn off the car air conditioning to conserve fuel, but history
16 shows these alternatives have very limited impact on consumption, at least initially. Here, the
17 demand price is inelastic, and producers realize a windfall in revenue. If gas prices remain high
18 for, say, a year, consumers will begin to make significant changes, such as trading in the SUV for
19 a compact car or an electric vehicle, or moving closer to where they work. The demand price
20 becomes more elastic as the time horizon is extended.

21 Typically, consumers are more price sensitive for durable goods than for nondurable goods. If the
22 price of automobiles rise substantially consumers may delay buying a replacement vehicle for
23 many years. They have a good substitute – their existing car. If prices remain high for a decade

1 they will have little choice but to replace their worn-out vehicles. In that case, the short-run price
2 elasticity is high (above one), but the long-run price elasticity is lower (well below one).
3 Because calculations are performed in percentages, elasticity is scale free, meaning it does not
4 matter whether the quantity consumed is measured in pounds, tons, gallons, kilowatt hours, mcf,
5 or other scale. This also means that the demand price elasticity of a good can be compared to that
6 for any other good.

7 **Q.9. Do consumers respond to the price for energy?**

8 **A.9.** Consumers do respond to the price of natural gas and electricity. For example, consumer
9 usage of natural gas and electricity can change in response to price. The sensitivity is modest in
10 the short run, but rises significantly as consumers have time to change their behavior and
11 infrastructure. For example, a recent study of 300 million energy bills in California¹ was used to
12 estimate the price elasticity of natural gas, finding it to be between -0.17 and -0.23. This means
13 that a price increase of 10 percent leads to a reduction in the quantity of natural gas purchased of
14 between 1.7 and 2.3 percent. Another study, using data from 44 countries, found that the long-run
15 price elasticity of natural gas demand was around -1.25.² So, researchers have found low
16 sensitivity to price changes in the short term related to usage, but much higher sensitivity over the
17 long term. This makes sense, as typically consumers cannot or will not quickly change their
18 heating systems or other infrastructure. For example, if there is an immediate price hike for natural
19 gas, one can turn down the thermostat a bit in winter and lower consumption somewhat, but a

¹ “Natural gas price elasticities and optimal cost recovery under consumer heterogeneity: Evidence from 300 million natural gas bills”, by Maximilian Auffhammer and Edward Rubin, 2018, <https://haas.berkeley.edu/wp-content/uploads/WP287.pdf>

² “The price and income elasticities of natural gas demand: International evidence”, by Paul J. Burke and Hewen Yang, *Energy Economics*, Volume 59, September 2016, pages 466-474.

1 home must be heated and people do not like cold showers. Over several years, if natural gas prices
2 remain high, consumers may consider a switch to alternative energy infrastructure (electric water
3 heating, heat pumps), as well as install more insulation and better windows.

4 **Q.10. Do consumers react in other ways to the price of natural gas?**

5 **A.10.** Yes. For example, although I have not investigated the Ohio natural gas market, I
6 understand that Ohio has at least partially deregulated its markets for natural gas. I would expect
7 that Ohio natural gas customers would be more sensitive to price announcements than customers
8 in a fully regulated market. Consumer response is largely a function of the availability of
9 substitutes. Consumers with options are more able and willing to change suppliers than consumers
10 with no options. For example, where I live there is only one supplier of electricity and natural gas.
11 I have no choice but to pay the price charged by the regulated utility. I can adjust my thermostat
12 and make other behavioral changes, but cannot switch suppliers. So, logically, the demand price
13 elasticities should be larger (more sensitive) in deregulated markets than regulated ones. I have
14 not performed the research to determine the magnitude of that difference. However, I would
15 expect customers to react to price signals in a deregulated energy market like Ohio including the
16 pricing of any substitute offering such as a utility default service offer.

17 **Q.11. Do you have an opinion on whether natural gas customers in Ohio would be sensitive**
18 **to a price to compare on their monthly bills from their natural gas utility?**

19 **A.11.** Yes.

20 **Q.12. What is your opinion?**

21 **A.12.** Economists expect customers to be sensitive to price announcements for nearly all goods
22 and services. When prices rise, customers lower the amount purchased and seek substitutes. When

1 prices fall, customers tend to increase the amount purchased. Likewise, when substitutes are
2 available, customers may switch to a different source of supply.

3 **Q.13. Are you familiar with the price to compare message that Duke proposes to place on**
4 **natural gas customer bills?**

5 **A.13.** As I understand it, Duke is proposing to include the message below on its customers' bills.
6 The first sentence of the message provides an SSO comparison price. My understanding is that
7 the remainder of the bill message is required under the Commission's rules.

8 PRICE TO COMPARE: In order for you to save money, a natural gas supplier
9 must offer you a price lower than \$X.XX per CCF for the same usage that appears
10 on this bill. When shopping for a natural gas supplier, it may be useful to compare
11 supplier offers with the standard service offer (SSO) rate available to eligible
12 customers, which varies monthly based on the market price of natural gas. Price
13 represents one feature of an offer; there may be other features which you consider
14 of value. More information about the SSO and other suppliers' offers is available
15 at energychoice.ohio.gov or by contacting the PUCO.

16 **Q.14. As an economist, what consumer reaction would you anticipate if natural gas**
17 **customers were to begin receiving their monthly bills with the proposed "Price to Compare"**
18 **message?**

19 **A.14.** As I indicate above, consumers react to price signals especially when substitutes are
20 available. Here, some customers will simply compare the price shown on the notice with the price
21 they are currently paying a competitor supplier. If their current price is higher, some will likely
22 switch to the SSO. Other customers may recognize the difference between a spot market price
23 from a prior month to a contract price they may have contracted for over the next year. Those

1 customers may do more analysis and make their decision based, at least partly, on a forecast of
2 what they believe the market price is likely to be over the next year.

3 **Q.15. Does this conclude your direct testimony?**

4 **A.15.** Yes, but I reserve the right to modify my testimony.

CERTIFICATE OF SERVICE

The Public Utilities Commission of Ohio’s e-filing system will electronically serve notice of the filing of this document on the parties referenced on the service list of the docket card who have electronically subscribed to the case. In addition, the undersigned certifies that a courtesy copy of the foregoing document is also being sent (via electronic mail) on this 7th day of September 2022 on all persons/entities listed below:

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/s/ Gretchen L. Petrucci
Gretchen L. Petrucci

Exhibit PAC-1 Biographical Information

Paul A. Coomes, Ph.D.
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Paul Coomes is Emeritus Professor of Economics at the University of Louisville. He is a graduate of Brescia College (BA), Indiana University (MS), and the University of Texas (Ph.D.). Professor Coomes came to the University of Louisville from Texas in 1985. He has taught courses in urban economics, forecasting, microeconomics and macroeconomics. Most of his research concerns regional and urban economics, economic development, and measurement problems.



His scholarly research has appeared in many journals, including the *Journal of Labor Economics*, *Entrepreneurship Theory and Practice*, *Real Estate Economics*, *Journal of Urban Economics*, *Journal of Regional Science*, *Environment and Planning A*, *Urban Studies*, *Economic Development Quarterly*, and the *Journal of Economic and Social Measurement*.

He has had university-based contract research arrangements with most of the large organizations in the region, including UPS, General Electric, Amazon, Churchill Downs, LG&E, Louisville Water Company, Brown-Forman, Humana, Kentucky Distillers Association, Kentucky Fair Board, Kentucky Hospital Association, Jewish Hospital, several state government cabinets, and many others. He has also consulted for several major aluminum and steel companies, including TimkenSteel, Warren Steel, RioTinto, Alcan, Ormet, and Noranda; as well as many solar energy companies. He continues to produce research reports for the Kentucky Distillers Association and the Kentucky Wine and Spirits Wholesale Association. Currently, he is working on a research project for the Elizabethtown KY area, where they are preparing for the impacts of a huge SK/Ford battery plant for electric vehicles. He served for many years as a consultant to the Kentucky Chamber of Commerce.

Coomes is past chair of the Economics department at Louisville, past president of the Kentucky Economic Association, and was the 2014 Distinguished Economist of that organization. Professor Coomes has completed several major projects that impact local economic development policy, including the macro performance measuring system that became the analytical basis behind the Boyle Report and the creation of Greater Louisville, Inc, Louisville's

Chamber of Commerce. He also developed many regional economic impact models used by private and public groups to evaluate industrial developments. He recently served as Executive Director of the Office Health Policy, Kentucky state government. And, he currently volunteers as an advisor to the Pegasus Institute.

Paul lives with his wife in eastern Jefferson County. He is descended from William and Jane Coomes, who arrived in 1775 at Fort Harrod, Kentucky - where Jane became the first school teacher in the state. His hobbies include hiking, camping, golf, and genealogy. His favorite quote is by Nobel Laureate Ronald Coase (paraphrased): "If you torture the data long enough, Nature confesses".

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Summary: Testimony - Direct Testimony of Paul A. Coomes, Ph.D. electronically
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