

OCC EXHIBIT NO. _____

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of)	
Columbia Gas of Ohio, Inc. for Authority)	Case No. 08-72-GA-AIR
to Amend Filed Tariffs to Increase the)	
Rates and Charges for Gas Distribution)	
Services.)	
)	
In the Matter of the Application of)	
Columbia Gas of Ohio, Inc. for Approval)	Case No. 08-0073-GA-ALT
of an Alternative Form of Regulation and)	
for a Change in its Rates and Charges.)	
)	
In the Matter of the Application of)	
Columbia Gas of Ohio, Inc. for Approval)	Case No. 08-0074-GA-AAM
to Change Accounting Methods.)	
)	
In the Matter of the Application of)	<i>0075</i>
Columbia Gas of Ohio, Inc. for Authority)	Case No. 08-0074-GA-AAM
to Revise Its Depreciation Accrual Rates.)	

SURREBUTTAL TESTIMONY

of

ROGER D. COLTON

ON BEHALF OF THE

OFFICE OF THE OHIO CONSUMERS' COUNSEL

10 West Broad St., Suite 1800

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October 24, 2008

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1 ***Q1. PLEASE STATE YOUR NAME AND ADDRESS FOR THE RECORD.***

2 ***A1.*** My name is Roger Colton. My business address is Fisher, Sheehan & Colton, Public
3 Finance and General Economics (FSC), 34 Warwick Road, Belmont, Massachusetts.
4

5 ***Q2. ARE YOU THE SAME ROGER COLTON WHO PREVIOUSLY FILED DIRECT***
6 ***TESTIMONY ON BEHALF OF THE OFFICE OF THE OHIO CONSUMERS'***
7 ***COUNSEL IN THIS PROCEEDING?***

8 ***A2.*** Yes, I am.
9

10 ***Q3. WHAT IS THE PURPOSE OF YOUR SURREBUTTAL TESTIMONY TODAY?***

11 ***A3.*** My surrebuttal testimony will respond to the rebuttal testimony of Russell Feingold
12 (Columbia Gas of Ohio, Inc/s witness) with respect to the relationship between income
13 and natural gas consumption.
14

15 ***Q4. PLEASE RESPOND TO MR. FEINGOLD'S STATEMENT WITH RESPECT TO***
16 ***THE FACTORS TO CONSIDER IN MODELLING ENERGY CONSUMPTION.***

17 ***A4.*** Mr. Feingold claims that the U.S. Department of Energy ("DOE") found that natural gas
18 consumption is a function of many factors, of which the size of a dwelling unit is only
19 one. (Feingold Rebuttal, at 5 – 6). His assertion that DOE has concluded that there is no
20 relationship between natural gas consumption and the size of a housing unit, however, is
21 directly contrary to the specific statement of DOE. DOE states: "natural gas consumption
22 and expenditures per household did vary by household income—higher income
23 households consumed more and spent more on average. Higher income households lived

1 in larger housing units, which require more energy for heating.” (EIA/DOE, *Natural Gas*
2 *Use in American Households*, Household Income, at text accompanying Figures 1 – 3)
3 (June 2001). Moreover, as even Mr. Feingold’s testimony acknowledges, DOE publishes
4 a set of data known as “space heating intensity” (Feingold Rebuttal, at 7). This data
5 arises from the DOE’s Residential Energy Consumption Survey (“RECS”). In the RECS,
6 DOE defines its “conditional end-use intensity” as follows:

7 **Conditional End-Use Intensity (CEUI):** A measure of how intensely
8 energy is used that allows comparisons across housing units and
9 households by adjusting either the end-use consumption or expenditures
10 for the effects of certain characteristics, such as floorspace, degree-days,
11 or household members for households that use an energy source for a
12 particular end use. In the case of space-heating intensity, only the heated
13 floorspace and heating degree-days are used. The air-conditioning
14 intensity uses only the cooled floorspace and cooling degree-days. The
15 water-heating intensity adjusts consumption and expenditures for the
16 effects of the number of household members on water-heating
17 consumption.

18
19 (2001 Residential Energy Consumption Survey, Glossary) (emphasis added). As can be
20 seen, DOE explicitly states that, contrary to Mr. Feingold’s testimony, to “allow
21 comparisons across housing units and households” in calculating space-heating intensity,
22 “only the heated floorspace and heating degree days are used.” In addition to the
23 temperature (which obviously is used in determining heating consumption), it is the size

1 of the unit that is used by DOE. As DOE notes, while low-income households use
2 natural gas more intensely on a per square foot basis, the size of their housing units are
3 sufficiently smaller such that overall consumption for low-income households tends to be
4 lower. Mr. Feingold's statement that the higher space heating intensity of low-income
5 households "demonstrates conclusively that house size alone is not a good measure of gas
6 consumption and that other variables must be included" (Feingold Rebuttal, at 7) is not
7 only wrong, but is a mis-statement and mis-characterization of DOE's findings in the
8 RECS.

9
10 One should note, also, that Mr. Feingold forgot to insert units of measurement into his
11 Table 1 (Feingold Rebuttal, at 7) setting forth space heating intensities. The natural gas
12 space heating intensity set forth in Mr. Feingold's Table 1 is in cubic feet (not in therms
13 or CCF) per 1,000 square feet of heated living space per HDD. The difference in space
14 heating intensity presented in Mr. Feingold's Table 1, in other words, shows that
15 households with income less than \$10,000 have a space heating intensity of 4.77 cubic
16 feet (or less than 5/100ths of a therm) per thousand square feet of heated living space
17 higher than households with income of \$50,000 or more ($10.39 - 5.62 = 4.77$ cubic feet
18 per thousand square feet of heated living space). It is thus not surprising that the larger
19 size of the heated living space for higher income households more than offsets this
20 difference in space heating intensity.

**Q5. PLEASE RESPOND TO MR. FEINGOLD'S REBUTTAL TESTIMONY WITH
RESPECT TO THE COMPARABILITY OF UTILITY SERVICE TERRITORIES TO
THE STATE AS A WHOLE.**

A5. Mr. Feingold errs in his assertion that utility service territories across Ohio are not comparable to the state as a whole. I stated in my Direct Testimony:

I have examined the comparability of Ohio counties to statewide data with respect to a variety of factors. Those factors include the incidence and distribution of poverty; the use of natural gas for space heating; the age and type of housing units; temperatures as measured by Heating Degree Days (HDDs); and the type and size of households and their housing tenure. I find that there is no specific utility service territory in Ohio that is sufficiently different with respect to these factors that would render the use of statewide data inappropriate.

(Colton Direct, at 6). The empirical basis for this statement was requested by Columbia Gas and provided to Columbia Gas in response to discovery. The results of that comparison are presented in Schedule RDC-1SR. The data analysis begins with the counties served by Columbia Gas (Ohio) as identified by the Public Utilities Commission of Ohio (PUCO). The county-specific data is aggregated and compared to statewide data. As can be seen in Schedule RDC-1SR:

- The penetration of low-income households, whether defined as at or below 50% of the Federal Poverty Level ("FPL"), 100% of FPL, or 150% of FPL is identical between COH counties and the state.

- 1 • The penetration of natural gas heating is virtually identical;
- 2 • The age of housing units is virtually identical;
- 3 • The size of households is virtually identical, not only for the population as a
- 4 whole, but also for both owner and renter populations when viewed separately;
- 5 • The penetration of homeownership is identical;
- 6 • The penetration of various building types is identical, including the penetration
- 7 when broken down by renter vs. owner;
- 8 • The mobility of households, including mobility when broken down by owner and
- 9 renter, is identical.

10

11 ***Q6. DOES THIS COMPARABILITY INCLUDE THE EXTENT OF HEATING DEGREE***

12 ***DAYS?***

13 ***A6.*** Yes. Mr. Feingold seeks to make much ado about nothing in his discussion of the

14 distribution of Heating Degree Days (HDDs) by location. Mr. Feingold presents the

15 HDDs for seven communities and argues that “HDD values differ from high to low by

16 over 1,000 HDD, or by about 25 percent.” (Feingold Rebuttal, at 8). What Mr. Feingold

17 fails to state is that DOE has identified five “climate zones” in the United States. The

18 climate zones vary based on different combinations of HDDs and Cooling Degree Days

19 (CDDs). The HDD breakpoints are:

- 20 • Less than 4,000 HDDs (Climate Zone 4 and 5) (the distinction between these two
- 21 Climate Zones lies with the CDDs, not the HDDs);
- 22 • 4,000 HDDs to 5,500 HDDs (Climate Zone 3);
- 23 • 5,500 HDDs to 7,000 HDDs (Climate Zone 2); and

- More than 7,000 HDDs (Climate Zone 1).

DOE defines “climate zones” as being “climatically distinct areas, defined by long-term weather conditions affecting the heating and cooling loads in buildings.” (Residential Energy Consumption Survey, Glossary). According to DOE, “the zones were developed by the Energy Consumption Division in the Energy Information Administration (EIA) from seven distinct climate categories originally identified by the American Institute of Architects (AIA) for the U. S. Department of Energy and the U. S. Department of Housing and Urban Development. The zones were determined according to the 30-year average (1951- 1980) of the annual heating and cooling degree-days (base 65 degrees Fahrenheit).”

Only one of the Ohio communities listed by Mr. Feingold (Cincinnati) falls outside the band of HDDs that DOE has defined to be within the same climate zone. Only Cincinnati, in other words, falls into an area where the long-term weather conditions would affect heating loads sufficiently to be considered a “climatically distinct area.” Mr. Feingold, however, fails to mention that Columbia Gas of Ohio has no natural gas customers in Cincinnati. Instead, Cincinnati is served by Duke Energy Ohio, Inc. (“Duke Energy”), not by Columbia Gas.

Given these observations, Mr. Feingold’s extensive discussion of the significance of Heating Degree Days has little substance. Even Mr. Feingold’s reference to a 1,000 HDD for Duke Energy (Feingold Rebuttal, at 12) would place Duke Energy in the band

1 that is considered to be within the same climate zone for purposes of determining heating
2 consumption as per the Department of Energy's RECS.

3
4 ***Q7. PLEASE RESPOND TO MR. FEINGOLD'S TESTIMONY THAT THE AMERICAN***
5 ***COMMUNITY SURVEY ("ACS") CAUTIONS ABOUT USING THE ACS DATA***
6 ***FOR HOME ENERGY BILLS.***

7 ***A7.*** The U.S. Census Bureau publishes a fact sheet on each question asked in the American
8 Community Survey. This fact sheet presents the history of the question; examples of
9 legal requirements for data about the cost of utilities for which the ACS data is used; and
10 federal, state and local uses of data about the cost of utilities for which ACS data is used.
11 Appended to my surrebuttal testimony as Attachment RC-1SR is the Census Bureau's
12 fact sheet about the ACS questions regarding the cost of utilities, including the cost of
13 natural gas. Note that this question has been asked in the way now used by the Census
14 Bureau since 1980. Note that information about the cost of utilities, as developed
15 through the ACS, has a legal basis in at least three statutes. Note that the Census Bureau
16 reports that such data is not only used by public and private agencies to allocate housing,
17 aging and energy assistance, but the Census Bureau also explicitly reports that "utility
18 companies use these data to forecast the need for additional facilities or services."
19 Finally, the Census Bureau reports that it has developed the form of the question on
20 utility costs because its current form "improves accuracy of the responses about each
21 item." (emphasis added). Mr. Feingold's stated concerns about the use of ACS data
22 should be dismissed.

**Q8. DO YOU HAVE OTHER REASONS TO CONCLUDE THAT MR. FEINGOLD
OVERSTATES THE SIGNIFICANCE OF HEATING DEGREE DAYS IN HIS
REBUTTAL?**

A8. Yes. Mr. Feingold asserts that "it is not possible to say exactly the difference in use that additional HDDs have on customers." (Feingold Rebuttal, at 13). That is not accurate. Indeed, Mr. Feingold has provided all the data necessary to determine the minimal impact of the HDD variation that he has identified. The RECS provides us with natural gas space heating intensity. Space heating intensity is provided in cubic feet per thousand square feet of space per HDD. Mr. Feingold provides us with the intensity figure and heated square footage (Feingold Rebuttal, Table 1, page 7) and the HDDs (Feingold Rebuttal, Table 3, page 13). In Schedule RDC-2SR I have thus set forth the change in monthly consumption based on a change of 100 HDDs. Schedule RDC-2SR shows that a change of 100 HDDs results in a change of monthly consumption of 1.0 CCF or less for all income brackets other than the highest income bracket (which has a higher amount of heated space with a resulting larger change in usage).

In making this calculation I use a change of 100 HDDs because that reasonably reflects the difference in HDDs that Mr. Feingold's Table 3 presents. The difference between the lowest income household reported by Mr. Feingold (4,167 HDDs) and the "total" (4,255) is 88 HDDs. The difference between the lowest income household (4,167 HDDs) and the highest income household (4,206 HDDs) is 39 HDDs. In short, Mr. Feingold's rebuttal testimony regarding the impact of Heating Degree Days provides no basis for his conclusions.

**Q9. PLEASE RESPOND TO MR. FEINGOLD'S TESTIMONY REGARDING THE
IMPACT THAT COLLEGE STUDENTS MIGHT HAVE ON ANY ANALYSIS OF
LOW-INCOME ENERGY CONSUMPTION.**

A9. Mr. Feingold presents testimony regarding the penetration of college students as the basis for concluding that my statewide information is unreliable. He asserts that while college students are "low-income," they have atypical energy consumption. As a result, he argues that any aggregated analysis of low-income consumption will be skewed, and thus invalid, unless the impact of college students can be removed. Since that removal is not possible, he concludes that any aggregated data on low-income usage is invalid.

Mr. Feingold uses data from a single zip code, zip code 43201, as the entire basis for his analysis. There are, however, nearly 1,200 zip codes in the State of Ohio. Mr. Feingold's testimony regarding one of those zip codes cannot be used for any particular conclusions.

Moreover, Mr. Feingold's reference to households with income of less than \$25,000 is not particularly helpful in identifying a "low-income" household. A one-person household with an income of \$25,000 would be living at 240% of the Federal Poverty Level in 2008. These households would not be eligible for Ohio's Percentage of Income Payment Plan ("PIPP"). Indeed, at the time of the 2000 Census (the American Community Surveys undertaken on a between-Census basis do not report data by zip codes), a one-person household with an income of \$25,000 would have been living at more than 300% of Federal Poverty Level. Mr. Feingold's reference to an "apparent

1 anomaly” of having few PIPP customers despite having many households with income
2 below \$25,000 is no anomaly at all. The number of non-PIPP customers amongst these
3 one-person households instead simply reflects the fact that these households do not
4 qualify for PIPP.

5
6 ***Q10. PLEASE RESPOND TO MR. FEINGOLD’S TESTIMONY REGARDING YOUR***
7 ***CRITIQUE OF THE USE OF UTILITY-SPECIFIC DATA.***

8 ***A10.*** Mr. Feingold does not directly respond, or rebut, my testimony regarding why the use of
9 data specific to utility service territories will not yield reliable results. What he does
10 instead is to introduce an analysis based on utility data specific to the Columbia Gas
11 service territory. (Feingold Rebuttal, at 17 – 19). The zip code analysis that he presents
12 has the very problems that I identified in my Direct Testimony. For all the reasons I set
13 forth in my Direct Testimony, Mr. Feingold’s analysis based on zip codes (Feingold
14 Rebuttal, at 17 – 20) is fatally flawed. I conclude that, for all the reasons I identified in
15 my Direct Testimony (Colton Direct, at Part 2(C) and Part 2(D)), Mr. Feingold’s zip code
16 analysis based on information specific to the Columbia Gas service territory is fatally
17 flawed. Such an analysis will systematically undercount low-use customers and is
18 inherently directed toward over-counting higher use customers.

19
20 In this regard, my testimony clearly did not recommend the use of “customers with
21 partial months of service” as indicated by Mr. Feingold (Feingold Rebuttal, at 16). What
22 my testimony documented was that the use of customers with 12 full months of data will
23 result in an overstatement of consumption. As I document in my Direct Testimony, such

1 an analysis effectively limits the inquiry to households that have the highest levels of
2 consumption.

3
4 ***Q11. HOW DO YOU RESPOND TO MR. FEINGOLD'S TESTIMONY REGARDING***
5 ***MOBILITY?***

6 ***A11.*** Mr. Feingold's discussion of mobility is flawed on its face. He indicates that 27.9% of all
7 households nationwide moved into their homes since 2005. (Feingold Rebuttal, at 16).
8 He then states that this 27.9% of all households nationwide represents only 1.3 million
9 households nationwide. It is not clear where Mr. Feingold derived his information about
10 mobility, but it is clear that his information is wrong. This is clear from the mere fact that
11 27.9% of all households nationwide would be far more than 1.3 million households.

12
13 We can derive information about mobility in Ohio. Appended as Attachment RC-2SR is
14 a printout of the 2007 American Community Survey on geographical mobility in Ohio by
15 tenure. In 2007, Ohio had 8,100,959 homeowners, of whom 7,531,324 (93.0%) had lived
16 in their same home one year previous. In 2007, Ohio had 2,914,565 households that
17 rented, of whom 1,895,264 (65%) had lived in their same home one year previous.
18 Conversely, therefore, 7% of Ohio homeowners and 35% of Ohio renters had moved in
19 the year prior to the 2007 American Community Survey. In 2007, in Ohio, five times
20 more renters than homeowners moved in 2007. This is consistent with the 30% tenant
21 mobility and 7% homeowner mobility that I reported in my Direct Testimony based on
22 2000 Census data. This data, however, cannot be reconciled with Mr. Feingold's data,
23 which is clearly in error.

1 Finally, I have appended as Attachment RC-3SR a printout of the 2007 American
2 Community Survey on geographical mobility by poverty level. In 2007, Ohio had
3 1,414,764 households with income below 100% of the Federal Poverty Level, only
4 982,784 (69.5%) of whom lived in the same home one year prior. Ohio had 898,559
5 households with income between 100% and 150% of the Federal Poverty Level in 2007,
6 only 706,938 (78.7%) of whom lived in the same home one year prior. Ohio had
7 8,684,823 households with income at or above 150% of the Federal Poverty Level, of
8 whom 7,732,248 (89.0%) had lived in the same home one year prior. Clearly, as I
9 indicated in my Direct Testimony, low-income mobility is substantially higher than non-
10 low-income mobility.

11
12
13 ***Q12. DOES THIS COMPLETE YOUR TESTIMONY?***

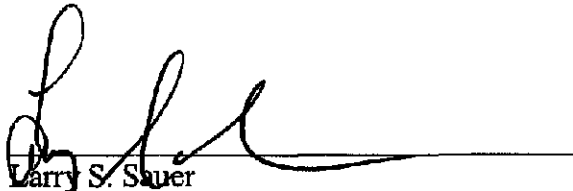
14 ***A12.*** Yes, it does.

CERTIFICATE OF SERVICE

It is hereby certified that a true copy of the foregoing *Surrebuttal Testimony of Roger D.*

Colton on Behalf of the Office of the Ohio Consumers' Counsel has been served via First Class US

Mail this 24th day of October, 2008.


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Schedule RDC-1SR

Comparison of Columbia Gas (OHIO) Counties to Statewide Data

	Ohio	COH Counties
Percent < 50% FPL	5%	5%
Percent < 100% FPL	11%	11%
Percent < 150% FPL	18%	19%
Percent natural gas heat	69%	72%
Median age hsg unit: Total	1962	1964
Household Size: Total	2.49	2.55
Household Size: Owner	2.63	2.64
Household Size: Renter	2.16	2.29
Percent Owner	69%	69%
Percent 1-family (attached/detached) (Owner)	92%	92%
Percent 5+ units (Owner)	1%	1%
Percent 1-family (attached/detached) (Renter)	31%	31%
Percent 5+ units (Renter)	41%	40%
Median year moved in (owner)	1990	1989
Median year moved in (renter)	1998	1998

Schedule RDC-2SR

Change in Natural Gas Usage per 100 Increase in HDDs by Income

	Total	Annual Income				Below FPL	Fuel Assistance
		Under \$10,000	\$10-29,999	\$30-49,999	\$50,000 or more		
Heated space (Feingold, Tbl 1)	1,836	1,067	1,340	1,688	2,458	1,100	1,319
HDDs (Feingold, Tbl 3)	4,255	4,167	4,247	4,378	4,206	3,986	4,277
Natural gas intensity (Feingold, Tbl 1)	6.78	10.39	8.71	6.95	5.62	10.37	8.83
Use (therms) /a/	530	462	496	514	581	455	498
Adjusted annual use (ccf) /b/	542	473	507	525	595	466	510
Change in monthly use (ccf)	1.0	0.9	1.0	1.0	1.2	1.0	1.0

NOTES:

/a/ Use in therms is calculated as follows: Intensity x HDDs x (Heated Space / 1,000) = cubic feet / 100 = CCF.

/b/ Adjusted annual use inserts a HDD increased by 100 HDDs in the above equation.