

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

THE PEOPLES GAS LIGHT	:	
AND COKE COMPANY	:	
	:	No. 09-_____
Proposed General Increase	:	
In Rates For Gas Service	:	

Direct Testimony of
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Manager
Sales and Revenue Forecasting
Integrys Business Support, LLC

On Behalf of
The Peoples Gas Light and Coke Company

February 13, 2009

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1 **I. INTRODUCTION AND BACKGROUND**

2 **A. Identification of Witness**

3 Q. Please state your name and business address.

4 A. My name is David W. Clabots. My business address is Integrys Energy Group, Inc.
5 (“Integrys”), 700 North Adams Street, P.O. Box 19001, Green Bay, WI 54307-9001.

6 Q. By whom are you employed and in what capacity?

7 A. I am Manager of Sales and Revenue Forecasting in the Budgets and Forecasts
8 Department of Integrys Business Support, LLC (“IBS”), a wholly-owned subsidiary of
9 Integrys.

10 Q. For whom are you providing testimony?

11 A. I am providing testimony for The Peoples Gas Light and Coke Company (“Peoples
12 Gas”), which is a wholly-owned subsidiary of Peoples Energy Corporation (“PEC”),
13 which, in turn, is a wholly-owned subsidiary of Integrys.

14 **B. Purpose of Testimony and Summary of Conclusions**

15 Q. Mr. Clabots, what is the purpose of your testimony?

16 A. The purpose of my testimony is to explain how the customer demand forecast was
17 derived for the 2010 test year. I also will compare demand between Peoples Gas’
18 forecasted 2010 test year and Peoples Gas’ last comparative year¹ (2008). Based on
19 Peoples Gas’ regression analyses and information related to its large volume demand

¹ Comparative year 2008 is made up of 2008 actual weather normalized demand from January 2008 – June 2008 and forecasted demand from July 2008 – December 2008. For more details of this comparative year see Section IV. Comparison of Comparative Year Demand to Forecasted Demand.

20 customers, Peoples Gas forecasts 2010 customer demand of 173.2 billion cubic feet
21 (“Bcf”) of natural gas.

22 **C. Background and Experience**

23 Q. Please briefly outline your educational background.

24 A. I hold Associate Degrees in Credit Management and Accounting from Northeast
25 Wisconsin Technical College – Green Bay, Wisconsin. I also hold a Bachelor of Arts
26 Degree with a double major in Business Administration and Accounting, and a minor in
27 Economics, from Lakeland College - Sheboygan, Wisconsin.

28 Q. Please summarize your business experience.

29 A. In June of 1983, I was hired by Wisconsin Public Service Corporation (“WPS”), which
30 became a subsidiary of WPS Resources Corporation (“WPSR”), now Integrys, as a Field
31 Accounting Clerk in the Plant Accounting Department. In January 1988, I became a
32 Cost/Scheduling Specialist in the Substation/Transmission Department. In April of 1994,
33 I became a Market-side Forecaster in Regulatory Affairs, and in September 2005, I was
34 promoted to Manager of Forecasting and Revenues in Regulatory Affairs. In December
35 of 2006, I was promoted to Director of Forecasting and Revenues in Regulatory Affairs.
36 In May of 2007, as a result of the transaction in which PEC became a subsidiary of
37 WPSR (Integrys), my title changed to Manager of Sales and Revenue Forecasting, which
38 position is now in the Budgets and Forecasts Department of IBS.

39 Q. What are your current duties and responsibilities?

40 A. As Manager of Sales and Revenue Forecasting in the Budgets and Forecasts Department,
41 I have carried out duties including various aspects of the development of short-term and
42 long-term electric and gas forecasts.

43 Q. Have you previously testified before any regulatory agency?

44 A. Yes, I have. I have testified before the Michigan Public Service Commission (“MPSC”) in Case Nos. U-14745 and U-15352, which are Upper Peninsula Power Company’s and Wisconsin Public Service Corporation’s most recent general rate cases. I have testified for WPS before the Public Service Commission of Wisconsin (“PSCW”) in rate case dockets 6690-UR-118 and 6690-UR-119.

49 **II. GAS SALES FORECAST METHODOLOGY**

50 **A. Forecast of Customer Demand**

51 Q. Please describe the methodology that Peoples Gas uses to forecast customer demand for the 2010 test year.

53 A. Actually, two different forecast methodologies are used to determine forecasted customer demand, which consists of total retail sales volumes plus total transportation volumes. To determine which methodology applies depends on the particular customer class. Peoples Gas’ customers are currently divided among seven rate classes. Service Classification Nos. (“Rates”) 1 and 2 customers are classified as “firm general”. The customers in Rates 4 through 8 are classified as “large volume customers”. Rates 1 and 2 customers include approximately 827,000 customers, and Rates 4 through 8 include approximately 238 customers. Due to the marked difference in usage patterns and volumes between these two groups, Peoples Gas uses two forecast methodologies. Regression analysis is used for Rates 1 and 2. Regression analysis is a top-down

63 approach that measures an entire customer segment's sensitivity to certain explanatory
64 variables (e.g., weather, price, and estimated efficiency improvements). For Rates 4
65 through 8, Peoples Gas uses a methodology that is a bottom-up approach and is based on
66 specific customer usage data. The two-pronged approach results in two separate
67 forecasts, namely a forecast of firm general demand and a forecast of large volume
68 customer demand, which are then combined to arrive at projected total demand.

69 Q. Can you describe in more detail the two methodologies used to determine forecasted total
70 demand?

71 A. Yes. I will first describe the bottom-up analysis used to calculate large volume customer
72 demand, and then I will describe the regression analysis used to determine the forecast of
73 firm general demand.

74 Q. Please describe the bottom-up methodology used to determine the large volume customer
75 demand forecast for the 2010 test year.

76 A. The bottom-up methodology used to project large volume customer demand is comprised
77 of a multi-step process. First, the annual usage for Rates 3 through 8 customers during
78 the twelve-month period ended December 2007 was obtained from customer records.
79 (Note: Rate 3 was eliminated by Peoples Gas in February 2008, in accordance with its
80 last rate case order from the Illinois Commerce Commission, with customers moving to
81 Rate 4. Some customers later moved to Rate 2, as discussed further below.) Second, the
82 Commercial and Industrial ("C&I") Account Management Department provided the
83 expected changes in the demand of individual customers based on historical data and
84 interviews with customer representatives. Third, the Gas Accounting Department
85 proposed adjustments to demand based on its examination of historical billing data and

86 the historical experience of customers transferring between rate classes. Finally, these
87 changes were then added to or subtracted from the customers' annual usage for the period
88 ending December 2007 to yield the forecast of demand for large volume customers in the
89 2010 test year.

90 Q. What were the expected changes in demand for large volume customer demand as
91 determined by the C&I Account Management Department?

92 A. Based in part on discussions with Rates 4 through 8 customer representatives, the C&I
93 Account Management Department was able to construct a list of certain events expected
94 to impact large volume customer demand, including adjustments for known projects with
95 a very high probability of completion or projects that have already been announced.
96 Peoples Gas also made adjustments to the forecast for billing irregularities. These
97 various projects and billing adjustments netted to a decrease of only 0.1 Bcf.

98 Q. What were the expected changes in demand for large volume customer demand as
99 determined by the Gas Accounting Department?

100 A. Based on its analysis, the Gas Accounting Department determined a decrease of 6.9 Bcf
101 for large volume customer demand was necessary due to transferring customers between
102 rate classes, which corresponds to a 6.9 Bcf increase in firm general demand.

103 Q. Please describe the regression analysis used to determine the firm general demand
104 forecast for the 2010 test year.

105 A. The forecast process for firm general demand also is based on a multi-component
106 approach. Demand is first divided into Rate 1 and Rate 2 demand. These two
107 classifications are further divided into demand by non-heating customers and demand by

108 heating customers. Finally, demand is divided into number of customers and usage per
109 customer. This disaggregation of firm general demand provides the following eight
110 components, which are forecasted independently on a monthly basis:

- 111 1) Usage per non-heating Rate 1 customer
- 112 2) Number of non-heating Rate 1 customers
- 113 3) Usage per heating Rate 1 customer
- 114 4) Number of heating Rate 1 customers
- 115 5) Usage per non-heating Rate 2 customer
- 116 6) Number of non-heating Rate 2 customers
- 117 7) Usage per heating Rate 2 customer
- 118 8) Number of heating Rate 2 customers

119 The division of firm general demand into these various components is performed because
120 various economic, demographic and weather factors affect each component of firm
121 general demand differently. By examining each of the eight components, and relating
122 them to those factors, a greater understanding is gained of how these factors affect firm
123 general demand. The factors used by Peoples Gas to evaluate the eight components and
124 the sources for the factors' historical and forecast values, if applicable, are contained in
125 Table 1²:

² In Table 1, "NOAA" is the National Oceanic and Atmospheric Administration; "BLS" is the Bureau of Labor Statistics; "Peoples Gas Purchased Gas Charge in \$82" is Peoples Gas' Gas Charge expressed in 1982 dollars.

Table 1

Factors

Category	Location	Description	Source: Historical	Source: Forecast
Efficiency Index	Chicago	Average percentage change in usage per customer multiplied by factor	Internal	Internal
Price	Chicago-Gary-Kenosha, IL-IN-WI	Consumer Price Index all items: base period 1982-84 = 100	BLS	Internal (3% annually)
Price	PGL	PGL Purchase Gas Charge	Internal (actual gas charge)	Internal
Price	PGL	PGL Purchase Gas Charge in \$82	Calculated	Calculated
Price	PGL	PGL Purchase Gas Charge in \$82 12-month moving average	Calculated	Calculated
Weather	O'Hare	Heating degree days	NOAA	Internal
Weather	O'Hare	Normal Heating degree days	Internal	Internal
Weather	O'Hare / PGL	Sales Period heating degree days	Calculated	Not Applicable

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A multiple regression analysis is performed on each of the eight components. This multiple regression procedure statistically relates each component to factors contained in Table 1 that would be expected to affect that component. The equations generally utilize econometric methods to relate specific components of firm general demand to factors such as natural gas prices and weather. Finally, the model estimation process yields a forecasting equation for each component of firm general demand that could be used to predict that component.

134

Q. What equations were used during the model estimation process?

135

A. The following two equations are generic examples of the usage per customer equations and the number of customers equations that were used during the model estimation process.

137

138

Generic Usage per Customer Equation

139

$$Usage\ per\ Customer_t = (B_0 + B_1 \times Heating\ Degree\ Days_t \times Winter + B_2 \times Heating\ Degree\ Days_t \times Shoulder) \times Price_t^{B_3} \times Efficiency\ Index_t + B_4 \times Error_{t-1} + B_5 \times Error_{t-12}$$

140

141 B₀ is the intercept term. B₁-B₅ are the regression coefficients for each of the independent
142 variables. Independent variables (HDD, Price, Efficiency Index, Winter and Shoulder
143 binary variables) are variables used to explain the behavior of the dependent variable,
144 which in the case above is Usage per Customer. Heating Degree Days (“HDD”) is a
145 weather variable and is an index used to determine the duration and intensity of cold.
146 Each degree of mean temperature below 65 per day is counted as one heating degree day.
147 The formula is $HDD = 65 - (\text{average of 24 hours of temperature})$ or $65 - (\text{Max temp} - \text{Min}$
148 $\text{temp})/2$. The variable *Winter* equals 1 from November to April and equals 0 from May
149 to October. The variable *Shoulder* equals 1 in May, September and October and 0 for all
150 other months. The *Winter* and *Shoulder* variables enable the model to take into account
151 customer usage patterns that differ between winter, summer, and shoulder months. Price
152 is the cost of gas for Peoples Gas indexed to 1982 dollars to remove inflation (real
153 dollars). The efficiency index variable is an index of the declining consumption of
154 natural gas due to improvements in energy efficiency. The index is explained in more
155 detail below.

156 **Generic Number of Customers Equation**

157
$$\text{Number of Customers}_t = \text{Number of Customers}_{t-12} + B_0 + B_1 \times \text{Error}_{t-1}$$

158 Q. With respect to the efficiency index variable of the usage per customer equation, how
159 were the historical efficiency indices calculated?

160 A. An iterative approach was used to calculate the historical efficiency indices. Specifically,
161 first the average of the annual percent changes in usage per customer was calculated.

162 This was done as follows:

163 $(Total\ Monthly\ Sales / Total\ Monthly\ Customer\ Counts) = Average\ Monthly\ Use /$
164 $Customer.$

165 This is done from January 1983 to December 2007. Then the year over year percent
166 change in usage per customer is calculated on a monthly basis. For example:

167 $(January\ 2007\ usage\ per\ customer / January\ 2006\ usage\ per\ customer) = Percent$
168 $change\ in\ usage\ per\ customer.$

169 Last, the average is taken of all the monthly percent changes in usage per customer for
170 the period January 1983 to December 2007. All of this equals r in the formula below.

171 Second, the average annual percent change was converted into an efficiency index
172 using the following formula:

173 $Efficiency\ Index_t = Efficiency\ Index_{t-1} \times e^{(r/12 \times Iteration)}$

174 The variable r equals the annual percent change. The variable subscript t is the historical
175 month from January 1983 to December 2007. When t equals January 1983, the
176 *Efficiency Index* equals 100%.

177 Third, the variable *Iteration* is set to 100% and the model estimation process is
178 completed as mentioned above.

179 Finally, the variable *Iteration* is adjusted until the model estimation process
180 converged toward the final forecasting equation.

181 Q. What were the results from the iterative approach used to calculate the historical
182 efficiency indices?

183 A. Table 2 shows the weighted-average efficiency index from 1999 to 2007. Peoples Gas
184 estimates that from 1999 until 2007, the average firm general customer's usage of natural
185 gas declined approximately 1.27% per year due to efficiency improvements.

Table 2

The Peoples Gas Light and Coke Company

Efficiency Indices Analysis

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Weighted-average Efficiency Index*	81.17%	80.14%	79.12%	78.10%	77.11%	76.15%	75.19%	74.23%	73.26%
Change from Prior Year	-1.28%	-1.27%	-1.27%	-1.29%	-1.26%	-1.25%	-1.26%	-1.28%	-1.30%

* Efficiency Indices weighted by actual demand

186 Q. Did Peoples Gas compare these results to any outside sources?

187 A. Yes. Peoples Gas compared these results to a recent American Gas Association (“AGA”) study that showed normalized use per residential customer fell 29% between 1980 and 188 2007 nationwide. In fact, the rate of decline has accelerated since 2000 as the following 189 findings demonstrate:³

- 191 Annual rate of decline, 1980-2000 1.03%
- 192 Annual rate of decline, 2000-2007 1.85%
- 193 Annual rate of decline, 2003-2007 2.51%

194 Q. After the forecasting equations for each component were developed in the multiple 195 regression analysis, how are they used to predict the total firm general demand?

196 A. Peoples Gas gathers expected future values of each factor used in the firm general model 197 (price, weather, etc). Inputting these future values into the equations yields predicted 198 monthly values for the eight components being forecasted. The prediction of total firm 199 general demand is obtained by combining the eight components. Because the model 200 forecasts monthly demand the annual demand is the sum of the twelve monthly demands.

201 Q. Were any adjustments made to the forecast of firm general demand?

³ AGA Financial and Operational Information Series Volume 2008-10. Issue: Normalized Use per Residential Customer. Source data from AGA and Energy Information Administration (“EIA”).

202 A. Yes. Gas Accounting has been examining historical billing data and transferring
203 customers between rate classes (Rates 1 and 2 and Rates 4 through 8). These transfers
204 netted an increase of 6.9 Bcf for firm general demand and, as a result, an offsetting
205 decrease of 6.9 Bcf in large volume customer demand.

206 Q. Where there any adjustments made to the forecast of firm general demand based on
207 events, projects, or billing irregularities?

208 A. No. Similar to the process for Rates 3 through 8, the C&I Account Management
209 Department provided a list of certain events expected to impact demand. This list and
210 analyses from the Operations Accounting Department is used to adjust the forecast.
211 There were no known projects with a very high probability of completion. There also
212 were no significant billing irregularities requiring adjustments to the forecast.

213 Q. Has Peoples Gas used this model in the past to forecast firm general demand?

214 A. Yes.

215 Q. How has the model performed historically?

216 A. The model has performed well historically. The two types of equations -- usage per
217 customer and number of customers -- have different characteristics and are analyzed
218 separately in the following section. The first part covers the statistical reliability of the
219 usage per customer equations. The second part covers the statistical reliability of the
220 number of customers equations.

221 **B. Usage per Customer Equations**

222 Q. Please discuss the statistical reliability of the usage per customer equations.

223 A. The statistical reliability of the usage per customer equations is first measured with the
 224 coefficient of determination, or R^2 . The R^2 measures the proportion or percentage of the
 225 total variation in usage per customer that is explained by the regression model. The
 226 following Table 3 shows the R^2 for each equation, arranged in order of (i.e., percentage
 227 of actual demand in 2007).

Table 3

The Peoples Gas Light and Coke Company

Usage per Customer Equations

	R-squared	Percentage of Demand
Rate 1 Heating	99%	41%
Rate 2 Heating	99%	41%
Rate 2 Non-heating	88%	2%
Rate 1 Non-heating	93%	1%
Rate 4 - 8	Not Applicable	16%
Weighted Average	99%	100%

228 Approximately 99 percent of the total variation in Peoples Gas' usage per customer is
 229 explained by the regression models. The statistical reliability of the usage per customer
 230 equations is also measured by testing the significance of the regression by using the t-test.

231 Q. Can you explain what a t-test is?

232 A. Yes. A t-test is an accepted statistical procedure that tests the statistical validity of an
 233 explanatory variable/s within a regression model. The procedure involves testing two
 234 competing statements, the null hypothesis denoted by H_0 ., and the alternative hypothesis
 235 H_a ., which is the opposite of what is stated in the null. The hypothesis testing can be
 236 used to determine whether a statement about the value of a population parameter
 237 (estimated regression coefficients) should or should not be rejected.

238 Q. Please describe how you tested the significance of the regression.

239 A. Generally, a “test of significance” is a procedure by which sample results are used to
240 verify the truth or falsity of a null hypothesis. A null hypothesis is testing the importance
241 of explanatory variables in the regression model. In our case, the null hypothesis is that
242 the explanatory variable (price, weather, etc.) has no impact on usage per customer. In
243 the language of significance tests, a statistic is said to be statistically significant if the
244 value of the test statistic lies in the critical region. This is a region of values that would
245 make the null hypothesis improbable should the results of the test of significance fall into
246 that region but would be relatively plausible for the alternative hypothesis (i.e., the
247 explanatory variable has an impact on usage per customer). In this case, the null
248 hypothesis is rejected. For Peoples Gas’ regression analysis of usage per customer, the
249 t-test would reject the null hypothesis for every explanatory variable in the usage per
250 customer equations to the 92nd percentile. In other words, each of the explanatory
251 variables is statistically significant.

252 **C. Number of Customers Equations**

253 Q. Please discuss the statistical reliability of the number of customers equations.

254 A. The statistical reliability of the number of customers equations is first measured with the
255 coefficient of determination, or R^2 . The R^2 measures the proportion or percentage of the
256 total variation in the number of customers that is explained by the regression. The
257 following Table 4 shows the R^2 for each equation, arranged in order of importance (i.e.,
258 percentage of actual demand in 2007).

Table 4

The Peoples Gas Light and Coke Company

Number of Customers Equations

	R-squared	Percentage of Demand
Rate 1 Heating	99%	41%
Rate 2 Heating	99%	41%
Rate 2 Non-heating	99%	2%
Rate 1 Non-heating	100%	1%
Rate 4 - 8	Not Applicable	16%
Weighted Average	99%	100%

259 Approximately 99 percent of the total variation in Peoples Gas’ number of customers is
 260 explained by the regression models. Table 5 demonstrates a demand attribution analysis
 261 and shows that the change in the number of customers has historically had only a small
 262 impact on Peoples Gas’ total demand.

Table 5

The Peoples Gas Light and Coke Company

Demand Attribution Analysis (in bcf)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Aggregated Change
Total	213.4	218.5	191.3	201.3	206.0	188.6	186.4	168.6	179.9	177.7	174.1	173.3	
Change from Prior Year		5.1	-27.2	10.0	4.7	-17.4	-2.3	-17.8	11.3	-2.1	-3.7	-0.8	-40.1
Change Due to													
Weather		7.5	-6.9	4.5	5.8	-7.6	1.8	-10.4	9.0	-0.1	0.0	0.0	3.6
Base Load Shift		0.0	-2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-2.6
Price		-2.8	-5.6	4.4	-1.9	-2.4	-1.7	-1.2	1.6	-1.1	-2.5	0.5	-12.7
Efficiency Improvements		-2.3	-2.1	-2.2	-2.1	-2.0	-1.9	-1.8	-1.9	-1.9	-1.9	-1.8	-21.9
Large Volume Customers		-0.1	-5.9	0.5	-1.3	-2.2	-1.0	-2.0	0.3	0.0	0.0	0.0	-11.8
Customer Growth/(Decline)		0.6	-0.6	-2.4	-1.4	-0.4	0.6	0.5	2.0	1.2	0.7	0.6	1.5
UPC Autoregressive Error Term		-1.3	1.3	-1.5	3.1	2.9	-1.8	-0.2	-1.7	0.2	-0.1	0.0	1.0
UPC Forecast Error		3.6	-4.8	6.7	2.4	-5.7	1.7	-2.6	2.1	-0.5	0.0	0.0	2.8
Total		5.1	-27.2	10.0	4.7	-17.4	-2.3	-17.8	11.3	-2.1	-3.7	-0.8	-40.1

263 Q. Can you further explain Table 5?

264 A. Yes. Table 5 shows the change in total Peoples Gas’ demand attributed to weather, price,
 265 efficiency improvements, large volume customers, and number of firm general
 266 customers. For example, from 1999 to the 2010 test year, Peoples Gas’ demand has

267 decreased 40.1 Bcf or 19% mostly due to three factors. A 21.9 Bcf decrease is due to
268 estimated efficiency improvements, 12.7 Bcf is due to higher natural gas prices, and 11.8
269 Bcf is due to a decrease in consumption in total by the large volume customer group.
270 Table 5 also shows that the magnitude of changes in total Peoples Gas demand due to
271 customer growth/(decline) for Rates 1 and 2 is relatively small compared to changes in
272 demand due to weather, price, and efficiency improvements.

273 Q. Were other tests used to measure the statistical reliability of the number of customers
274 equations?

275 A. Yes. The statistical reliability of the number of customers equations is also measured by
276 testing the significance of the regression by using the t-test. In our case, the null
277 hypothesis is that the explanatory variables have no impact on number of customers. For
278 the Peoples Gas regression analysis of number of customers, the t-test would reject the
279 null hypothesis for every explanatory variable in the number of customers equations to
280 the 93rd percentile.

281 Q. Based on these analyses, what level of customer demand does Peoples Gas forecast for
282 test year 2010?

283 A. Peoples Gas forecasts firm general demand of 151.9 Bcf and large volume customer
284 demand of 21.3 Bcf, for a total of 173.2 Bcf in test year 2010.

285 **III. COMPUTATION OF REVENUES BASED ON FORECASTS**

286 Q. How are revenues derived from the demand forecast?

287 A. For Rates 1 and 2, the four classifications from annual firm general demand volumes and
288 customers are further divided into the following 16 customer types and classifications by

289 month for volume blocking and revenue forecasting purposes. This determines monthly
290 and annual volume by rate, revenue class, heating / non-heating, and sales type. The 16
291 subgroups are:

- 292 (1) Rate 1, residential, heating, retail.
- 293 (2) Rate 1, residential, non-heating, retail.
- 294 (3) Rate 1, residential, heating, transportation.
- 295 (4) Rate 1, residential, non-heating, transportation.
- 296 (5) Rate 2, residential, heating, retail.
- 297 (6) Rate 2, residential, non-heating, retail.
- 298 (7) Rate 2, commercial, heating, retail.
- 299 (8) Rate 2, commercial, non-heating, retail.
- 300 (9) Rate 2, industrial, heating, retail.
- 301 (10) Rate 2, industrial, non-heating, retail.
- 302 (11) Rate 2, residential, heating, transportation.
- 303 (12) Rate 2, residential, non-heating, transportation.
- 304 (13) Rate 2, commercial, heating, transportation.
- 305 (14) Rate 2, commercial, non-heating, transportation.
- 306 (15) Rate 2, industrial, heating, transportation.
- 307 (16) Rate 2, industrial, non-heating, transportation.

308 Monthly consumption and billing period statistics up to May 2008 were obtained from
309 the revenue statistics tables, which are stored in the Customer Information System's
310 datamart. The revenue statistics tables are a collection of customer billing information.

311 Those statistics were used to compute “Base use per Billing Period” and monthly “Heat
312 use per Billing Period per Degree Day” for each Rates 1 and 2 customer categories.

313 Q. Were any assumptions made for Rates 1 and 2?

314 A. Yes. For Rates 1 and 2, the assumptions are as follows:

- 315 • Heating Degree Days (HDD): 6,095 (12 year normal).
- 316 • Base Use per Billing Period (1 to 3 year average factors): July and August actual
317 consumption divided by billing periods.
- 318 • Heat Use per Degree Day per Billing Period (1 to 3 year average factors):
319 monthly actual consumption less base use per billing period divided by actual
320 degree days.
- 321 • Large Volume Transportation Billing Periods: Computed based on the May 2008
322 contract rollover data provided by the C&I Account Management’s Gas
323 Transportation Services Team (“GTS”).
- 324 • Small Volume Transportation Billing Periods: Computed based on actual data
325 thru April 2008 and forecasted monthly increases provided by GTS.
- 326 • Total Rates 1 and 2 Billing Periods: 12 months ended May 2008 adjusted for
327 forecasted customer count changes from the firm general demand forecast.
- 328 • Retail Billing Periods: Total monthly Rate 1 billing periods less total monthly
329 Rate 1 Transportation billing periods. The same process is used for Rate 2 retail
330 billing periods.
- 331 • Monthly Demand Volume from the Use per Degree Day Method: The following
332 formula is used for each month to derive the monthly demand forecast:
333 (Base Use per Billing Period Factor) times (Billing Periods) plus (Degree Days)
334 times (Heat Use per Degree Day per Billing Period Factor) times (Billing
335 Periods).
- 336 • Demand device: June 2008 count.
- 337 • Standby demand volume: Computed based on the May 2008 contract rollover
338 data.

339 Q. Were any adjustments made?

340 A. Yes. An adjustment was made to heating and non heating volumes.

341 Q. How were the heating and non heating volumes adjusted?

342 A. For Rates 1 and 2, heating and non-heating volumes determined by Use per Degree Day
343 Method were adjusted proportionately to match the adjusted total Rates 1 and 2 heating
344 and non-heating results of from the Annual Firm General Demand Volume Forecast. The
345 adjustments were made to each month, rate, revenue class, heating / non-heating, and
346 sales type. Adjusted volumes and billing periods are interfaced into the Gas Sales and
347 Revenue Model (“GSRM”).

348 Q. How were sales volumes allocated?

349 A. Sales volumes for Rates 1 and 2 were allocated to the rate blocks using the monthly
350 Ogive curves (cumulative line graph) developed from the billed frequency data for each
351 Rates 1 and 2 customer classifications. This data is stored in the GSRM. Typically, the
352 monthly Ogive curves from the most recent 12 months are used. In some cases,
353 particularly for summer months, curves from adjoining months are used when preceding
354 year’s curves did not yield reasonable blocking results. In other cases, curves from the
355 second or third preceding year are used.

356 Q. Were any assumptions made for Rates 4 through 8?

357 A. Yes. For Rates 4 through 8 (including company use), the assumptions are as follows:

- 358 • Assumptions for all other rates: volume forecast based on the 12 months ended
359 December 2007 monthly volumes are then adjusted to remove irregular usage
360 patterns caused by billing errors (“smoothed”).
- 361 • Billing demand volume: Computed based on the May 2008 contract rollover data.
- 362 • Standby service volume: Computed based on the May 2008 contract rollover data.
- 363 • Standby demand volume: Computed based on the May 2008 contract rollover
364 data.

365 • Assumptions for special contracts (Rate 7) provided by C&I Account
366 Management.

367 Q. What is done next?

368 A. Pricing of Volumes and Other Charges then take place using the GSRM.

369 Q. How are the Volumes and Other Charge revenues calculated?

370 A. The various revenues are calculated as follows:

371 • Customer charges: (billing periods x customer charge), small and large meter
372 based on 12 month average x rates.

373 • Demand charges: demand volumes x rates.

374 • Distribution charges: volumes in each block x rates.

375 • Demand device charges: demand devices x rates.

376 • Standby service charges: standby service volumes x rates.

377 • Volume Balancing Adjustment (Rider VBA): volumes x rate. Rates provided by
378 Regulatory Services.

379 • Enhanced Efficiency Program (Rider EEP): billing periods x rate. Rates provided
380 by Regulatory Services.

381 • Environmental charges (Rider 11): volumes x rates. Rates provided by
382 Regulatory Services.

383 • Low Income Energy Assistance Fund charge: billing periods x rate.

384 • Renewable Energy Resources Fund charge: billing periods x rate.

385 • Gas charge: volumes x rate from Gas Charge Model. Rates provided by
386 Regulatory Services.

387 • Transportation Contract / Pool Charges: developed by Operations Accounting and
388 verified by GTS.

389 **IV. COMPARISON OF COMPARATIVE YEAR**
 390 **DEMAND AND FORECASTED DEMAND**

391 Q. Please compare and describe the differences between Peoples Gas 2008 comparative year
 392 demand to Peoples Gas 2010 test year demand.

393 A. Peoples Gas 2008 comparative year demand is based on actual weather normalized
 394 demand (based on 6,095 HDD) from January 2008 to June 2008 and forecasted demand
 395 from July 2008 to December 2008. The forecast used for July 2008 to December 2008 is
 396 the forecast used for Peoples Gas 2008 budget except for one adjustment. The forecasted
 397 demands for Rates 1 and 2, which were based on a 10-year average degree day of 6,044
 398 HDD, were adjusted to 6,095 HDD, which is the same HDD used for the 2010 test year.
 399 The general methodology used to prepare the 2010 test year forecast as explained above
 400 was used to generate Peoples Gas' 2008 budget forecast. Please see Table 6.

Table 6
 The Peoples Gas Light and Coke Company
 Test Year ending December 31, 2010
 (Therms)

Line No.	Present Rate Classification [A]	Fiscal Year 2008 [B]	Weather Adjustments [C]	Normalized Fiscal Year 2008 [D]	Test Year 2010 [E]	Difference [F] (E-D)	Annualized % Chg [G] (F/D)/2	Line No.
Sales and Transportation								
1	Company Use	7,712,000	-	7,712,000	7,348,000	(364,000)	-2.4%	1
2	S.C. No. 1	779,833,000	(38,965,000)	740,868,000	722,654,000	(18,214,000)	-1.2%	2
3	S.C. No. 2	837,090,000	(39,059,000)	798,031,000	796,709,000	(1,322,000)	-0.1%	3
4	S.C. No. 3	25,466,000	-	25,466,000	-	(25,466,000)	-50.0%	4
5	S.C. No. 4	178,145,000	-	178,145,000	164,236,000	(13,909,000)	-3.9%	5
6	S.C. No. 6	90,000	-	90,000	92,000	2,000	1.1%	6
7	S.C. No. 7	38,028,000	-	38,028,000	40,754,000	2,726,000	3.6%	7
8	S.C. No. 8	132,000	-	132,000	145,000	13,000	4.9%	8
9	Total Volumes	1,866,496,000	(78,024,000)	1,788,472,000	1,731,938,000	(56,534,000)	-1.6%	9

401
 402 The declining annualized percent change from 2008 to 2010 for Rates 1 and 2 are a result
 403 of declining usage due to price and efficiency improvements. Rate 3 was eliminated by
 404 Peoples Gas, in accordance with its last rate order, with customers moving to Rate 4.
 405 Rate 4 2010 test year sales are lower than 2008 sales because of customer switches that

406 occurred immediately after the elimination of Rate 3 in Peoples Gas' last rate order.
407 Peoples Gas moved all customers from Rate 3 to Rate 4. Approximately two-thirds of
408 those customers that were on Rate 3 remained on Rate 4 for a few months and then
409 began, by their own choosing to move to Rate 2 by the end of June 2008. The 2010 test
410 year sales forecast for Rate 4 is based on the updated customer statuses, as well as any
411 known and measurable changes for test year 2010. Adjustments were made to seven
412 customers of whom sales were decreased for three customers and increased for four
413 customers. These adjustments netted to an increase of 1,070,000 therms. The increase in
414 Rate 7 from the 2008 comparative year period to the forecast period is due to variation in
415 electric peaker generation. Weather and other electric market variables play a big part in
416 the volumes consumed for certain customers under this rate. The increase in Rate 8 is
417 due to the expected consumption of Compressed Natural Gas ("CNG") customers. Test
418 year 2010 forecast is based on year 2007 billed and smoothed volumes whereas 2008
419 volumes consist of actual volumes from the first six months of year 2008 and forecast
420 volumes for the last six months. The basis for the forecast volumes for the last six
421 months of 2008 came from the twelve months ended March 2007 billed and smoothed
422 monthly volumes.

423 Q. Does this conclude your direct testimony?

424 A. Yes, it does.