STATE OF MARYLAND

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of the Application of the	**)**	
Baltimore Gas and Electric Company	**)**	**Case No. 9230**
for Revisions in its Electric and Gas	**)**	
Base Rates	**)**	

DIRECT TESTIMONY OF

PAUL CHERNICK

ON BEHALF OF

THE OFFICE OF PEOPLES COUNSEL

Resource Insight, Inc.

JULY 30, 2010

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I. Identification & Qualifications

Q: Mr. Chernick, please state your name, occupation, and business address.

A: I am Paul L. Chernick. I am the president of Resource Insight, Inc., 5 Water St., Arlington, Massachusetts.

Q: Summarize your professional education and experience.

A: I received an SB degree from the Massachusetts Institute of Technology in June 1974 from the Civil Engineering Department, and an SM degree from the Massachusetts Institute of Technology in February 1978 in technology and policy. I have been elected to membership in the civil-engineering honorary society Chi Epsilon, and the engineering honor society Tau Beta Pi, and to associate membership in the research honorary society Sigma Xi.

I was a utility analyst for the Massachusetts Attorney General for more than three years, and was involved in numerous aspects of utility rate design, costing, load forecasting, and the evaluation of power supply options. Since 1981, I have been a consultant in utility regulation and planning, first as a research associate at Analysis and Inference, after 1986 as president of PLC, Inc., and in my current position at Resource Insight. In these capacities, I have advised a variety of clients on utility matters.

My work has considered, among other things, the cost-effectiveness of prospective new electric generation plants and transmission lines, retrospective review of generation-planning decisions, ratemaking for plant under construction, ratemaking for excess and/or uneconomical plant entering service, conservation program design, cost recovery for utility efficiency programs, the valuation of environmental externalities from energy production and use, allocation of costs of service between rate classes and jurisdictions, design of

retail and wholesale rates, and performance-based ratemaking and cost recovery in restructured gas and electric industries. My professional qualifications are further summarized in OPC Exhibit PLC-1.

Q: Have you testified previously in utility proceedings?

A: Yes. I have testified more than two hundred times on utility issues before various regulatory, legislative, and judicial bodies, including utility regulators in thirty states and five Canadian provinces, and two US Federal agencies. This testimony has included the many reviews of utility cost-allocation studies, revenue-allocation proposals and rate designs.

Q: Have you testified previously before the Commission?

A: Yes. I have testified approximately 14 times before the Commission, most recently in the previous rate proceeding of Baltimore Gas and Electric (BG&E), Case No. 9036.

II. Introduction

Q: On whose behalf are you testifying?

A: I am testifying on behalf of the Maryland Office of Peoples Counsel.

Q: What is the scope of your testimony?

A: I review BG&E's recommended and alternative gas cost-of-service studies.

Q: What are your conclusions?

A: The Company's recommended gas cost-of-service study is generally an improvement over the study presented in the previous rate proceeding. The one problem I have found in the recommended gas cost-of-service study is that it allocates the cost of the Spring Garden cleanup, which is the result of past energy use, in proportion to distribution plant, and hence on the costs of

mains, service and meters. The costs of Spring Gardens cleanup should be allocated on throughput.

The alternative gas cost-of-service study is based on a number of incorrect assumptions and is internally inconsistent and illogical. The Commission should reject the alternative gas cost-of-service study.

III. Gas Cost Allocation

Q: How have you structured your testimony on the allocation of the costs of gas service?

A: The Company presents two gas cost-of-service studies. The difference between the two studies is that the Company's recommended study allocates all mains costs based on class firm-load contribution to the 2009 coincident peak (CP), while the alternative cost-of-service study allocates mains of 12-inch diameter and larger to all load and smaller mains to all load except Sparrow Point.

I discuss these studies in order, starting with the recommended cost-of-service study and then dealing with the differences in the alternative cost-of-service study.

A. The Company's Recommended Gas Cost-of-Service Study

Q: How does the Company's recommended gas cost-of-service study compare to the cost-of-service study the Company presented in its previous rate proceeding?

A: This study is an improvement over the cost-of-service study presented in the previous general gas rate case (Case No. 9036). In that proceeding, I made the following recommendations. First, that Critical Use Gas in the interrupt-

ible classes (IS and ISS) be included in the CP allocator, since Critical Use is firm load, included in BG&E's planning. Second, that the non-coincident peak (NCP) for the residential class should be computed for the overall class peak, rather than the sum of the heating and non-heating subclasses' separate peaks on different hours and days, since it is the class peak that best approximates the peak loads on residential parts of the system.

Although in its 9036 Order the Commission ultimately did not require BG&E to make these improvements in its previous cost-of-service study, the Company nonetheless decided to include these changes in the current cost-of-service study. Indeed, these are the only changes in the approach in the recommended 2009 Gas Cost of Service Study, as the Company explains in SP DR 1-1:

> The Company continues the same cost allocation philosophy of the Commission-approved 2003 Gas Cost of Service Study with the following exceptions:
>
> 1. Interruptible Critical Use Gas was included in the CP allocator (last general gas rate case Critical Use was excluded).
>
> 2. Because the gas main service to heating and non-heating residential customers is generally the same, we feel it more appropriate to combine the two sub-classes from a NCP cost of service basis, i.e., we measured the NCP of the two subclasses combined (not separately as in the last general gas rate case.) More importantly, this costing approach is consistent with supporting the existing one delivery service therm price for all customers in Schedule D.

I commend the Company for taking the initiative to improve its gas-cost-of-service-study methodology.

Q: What remaining issues have you identified with BG&E's recommended gas cost-of-service study?

A: The only issue I have with the Company's recommended gas cost-of-service study is the treatment of Plant Account 182.36—Environmental Costs and Amortization Account 407—Spring Garden. Both of these accounts relate to the environmental remediation of Spring Gardens, the site of one of the country's largest coal-gasification facilities since in 1855, with expansions at least into the 1920s and operations continuing to the early 1970s. This gas-manufacturing process resulted in significant site contamination.

The Company allocates these accounts in proportion to allocated distribution plant, which is the sum of accounts allocated on NCP (mostly mains) and various accounts assigned to customer classes based on the number and type of attachment equipment (mostly services and meters).

Q: Is this allocation the same as in Case No. 7036?

A: No. In the previous rate case, BG&E allocated these costs on class non-coincident peak. In the current cost-of-service study, the Company adds customer-classified costs to the allocator for the Spring Gardens costs.

Q: Is there any reasonable basis for allocating these environmental costs partially on the costs of meter and services?

A: No. Meters, services, and the other customer-classified costs have nothing to do with the costs of Spring Gardens remediation.

Q: How should the Spring Gardens costs be allocated among customer classes?

A: The environmental cleanup costs should be allocated on the basis of the past service that created the damage.

The environmental damage from distilling coal to produce gas was determined predominantly by the amount of fuel that was produced. Spring Gardens was apparently a baseload supply facility for BG&E (and its

predecessors)—perhaps its only gas-supply facility until the conversion of the system to pipeline natural gas after World War II. The current environmental problems are not the result of the peak capacity of the plant, peak loads on the system, or the number of customers served, now or in the past.

Therefore, to the extent that these costs are allocated according to the cause of the contamination, they should be allocated according to annual commodity throughput (BG&E's Total Throughput allocator), which the Company uses in the cost-of-service study to allocate dispatch costs and the franchise therm tax.

Q: What is BG&E's rationale for allocating the amortization of the Spring Gardens coal-gasification site in proportion to distribution plant, rather than throughput?

A: When asked for that rationale, BG&E replied:

> The costs being incurred are associated with environmental clean-up of a site and are akin to all other costs that today are not directly related to energy consumption. Therefore, like other Company plant costs, the currently incurred costs for the coal-gasification site are assigned to customer class according to corresponding distribution plant allocations. (OPC DR 5-15).

Q: Is there any merit to this argument?

A: No. While the Spring Garden costs do not result from current energy consumption, they result entirely from past energy consumption. And just as these costs are not related to current energy consumption, they are also not related to peak loads or the cost of customer connection equipment, and never have been.

B. The Alternative Gas Cost-of-Service Study

Q: Is the Alternative Gas Cost-of-Service Study an improvement over the Company's preferred study?

A: No. The exclusion of Sparrows Point from the allocation of the costs of mains less than 12 inches in diameter is neither logical nor equitable.

Q: What is the basis for the exclusion of the Sparrow's Point load from the allocation of mains under 12 inches?

A: The Company does not provide any justification for this treatment and does not endorse it. The Alternative Cost-of-Service Study was filed to fulfill a direction of the Commission in Case 7036, in response to the request of the previous owner of the Sparrows Point facility.

Q: Does the Sparrows Point facility use mains of less than 12-inch diameter?

A: Yes. Of the facility's 19 connection points, seven are from mains less than 12-inch diameter. One connection is as small as ¾ inch (OPC DR 5-11, Attachment 2). There is no reasonable basis for excluding from Sparrows Point's cost responsibility the costs of classes of equipment it uses.

Q: Would the method used in the Alternative Cost-of-Service Study make sense were Sparrows Point actually connected only to mains of 12-inch diameter or larger?

A: No. The philosophy behind the Alternative Cost-of-Service Study appears to be, if mains of 12 inches or more served 100% of Sparrows Point's load, it would not be appropriate to charge Sparrows Point for the costs of smaller mains. While I do not find this argument to be convincing, if the Commission accepted this approach the same reasoning should be applied to other

classes.[1] Were Sparrows Point served 100% by 12-inch-or-larger lines, and thus were charged only for its use of the 12-inch-or-larger mains, the classes that are served only partially by the large mains should be charged only partially for those mains. For example, only about 3% of Schedule D customers are served directly from mains of 12 inches or more (OPC DR 5-11, Attachment 1). Only about 8% of BG&E's service territory is served by such mains (OPC DR 5-10, Attachment 1).

Q: Would reflecting the amounts of various classes' loads served by mains larger than 12 inches in diameter result in a very different main allocation than in the alternative cost-of-service study?

A: Yes. In Table 1, I show the effect of weighting class NCP by a rough estimate of the share of the class's load served off the mains of 12 inches or more. I weighted the Schedule-D load by the percentage of main footage that is 12 inch or larger; I use a 100% weight for Schedule SP, reflecting the implicit assumption in the alternative cost-of-service study that Sparrows Point is served only by the larger mains.[2] For the other classes, I weight by the percentage of customers are served directly from mains of 12 inches or more, from OPC DR 5-11, Attachment 1.

[1]As I pointed out, the basic assumption of this approach is not true, since Sparrows Point takes gas from smaller lines, as well.

[2]In reality, 37% of Sparrows Point's delivery points (and probably a smaller fraction of its gas volumes) are from smaller mains. Reflecting that fact would require that Sparrows Point pay for part of the smaller mains, but reduce its weighting in the NCP≥12 allocator.

Table 1: Allocation of Mains 12″ or Larger on Load Carried by Mains 12″ or Larger

		Schedule				
	Total	*D*	*C*	*ISS*	*IS*	*SP*
Load Data (Therms per Hour)						
NCP	430,616	234,245	130,662	3,788	41,011	20,910
12" or More (Percent)		8.3%	9.8%	21.9%	24.3%	100%
NCP of 12" or More	63,890	19,442	12,743	829	9,965	20,910
Ratios						
NCP		0.5440	0.3034	0.0088	0.0952	0.0486
NCP of 12" or More		0.3043	0.1995	0.0130	0.1560	0.3273
376-Mains 12″ and above (Dollars)						
Allocated on NCP	136,974,347	74,508,754	41,561,027	1,204,889	13,044,797	6,651,062
Allocated on NCP≥12	136,974,347	41,682,884	27,320,686	1,776,509	21,364,822	44,829,446

Reflecting these estimates of the percentage of class load served by the larger mains would result in Schedule SP being allocated almost $45 million in mains investment, considerably more than the $30 million of mains allocated to Schedule SP in the recommended cost-of-service study.

Q: Do you recommend the use of the large-mains allocator you develop in Table 1?

A: No. Attributing different mixes of various-sized mains to the various rate schedules is not a useful exercise. The sizes and pressures of mains are the result of the history of the development of BG&E's system, with complicated interactions in the history of various lines. The division of mains by size is not a practical undertaking and does not promote equity.

Q: Does the cut-off at 12-inch diameter represent a logical cut-off point between large- and small-capacity lines?

A: No. In addition to size, the capacity of a line varies with the pressure of the gas in the line. The Company classifies its mains into six pressure categories (SP DR 1-40):

- Low pressure (LP), with input pressure of about 0.36 psig and output of at least 0.14 psig.
- Medium pressure (MP), with input pressure of about 10 psig and output at least 1 psig.
- High pressure (HP), with input pressure of 99 psig and output pressure of at least 25 psig.
- Over High Pressure (OHP), with input pressure of 200–300 psig and output pressure of at least 125 psig.
- 436-pound, with input pressure of 436 psig and output pressure of at least 350 psig.
- 720-pound, with input pressure of 500 to 720 psig and output pressure of at least 350 psig.

Distribution customers are served directly off all six categories of lines (OPC DR 5-12 and 5-14). Mains of diameter both greater and less than 12 inches operate at all six pressure levels.

A 12-inch LP main provides less capacity than a much smaller main operating at HP or OHP. Any grouping of mains by capacity that included 12-inch LP mains would also need to include higher-pressure mains, down to 2 inches or even lower. That cost category would include 23 million to 29 million feet of main, rather than the 3.1 million feet included in only 12-inch and larger mains. The cost of the high-capacity mains would be correspondingly greater than the costs of the over-12-inch mains.

While BG&E does not have data on the cost of mains by pressure level (OPC DR 5-13), it is likely that an allocation based on splitting mains by capacity, rather than diameter, would produce results much closer to those of the recommended cost-of-service study than to the alternative cost-of-service study.

Q: Does the division of mains by size introduce any other inequities into the allocation of mains costs?

A: Yes. The various sizes of mains reflect different vintages and different installation conditions. Allocating different mixes of mains to different classes would implicitly introduce vintaging and locational pricing into cost allocation; regulators generally avoid reflecting these considerations in cost allocation.

Table 2 illustrates the differences in vintage for the various size mains, as well as the variation in cost per foot, as a result of vintage and other factors. For example, the average foot of main smaller than 12 inches was installed in 1993, eight years after the average foot of the larger mains. Also, the average 8-inch main, installed in mid-1996, cost $67 per foot, more than the average 10-, 12-, 16-, 20-, and even 26-inch mains, in part because those various groups of mains were installed on average in 1969–1983.[3]

[3]It is interesting that OPC DR 5-10 reports lengths of eight main diameters for which SP DR 1-16 provides no costs. Most of these missing costs are in the larger-than-12-inches group.

Table 2: Mains Length, Cost and Vintage by Diameter

Nominal Diameter	Length (Feet) (OPC DR 5-10)	Cost (Dollars) (SP DR 1-16)	Dollars per Foot	Average Vintage by Length
½	307	0		
¾	1,091,791	3,226,967	3	Dec-1978
1	2,622	0		
1¼	5,086,533	6,812,376	1	Jan-1992
1½	5,362	11,099	2	Oct-1981
2	11,327,722	116,795,007	10	Aug-1995
2½	1,469	0		
3	1,581,742	10,929,782	7	Mar-1978
4	6,646,552	118,287,200	18	Jul-1996
5	20	0		
6	6,617,759	123,039,270	19	Sep-1990
8	1,547,728	103,586,495	67	Dec-1996
10	343,443	2,194,396	6	Dec-1969
12	1,333,315	52,574,496	39	Feb-1989
16	565,286	11,214,706	20	Jan-1976
20	570,631	18,085,204	32	Dec-1983
22	775	0		
24	265,357	40,324,426	152	Nov-1988
26	315,089	17,436,795	55	May-1980
30	42,593	0		
42	15,068	0		
48	1,717	0		
Total	37,362,881	624,518,219	17	Jun-1992
12″ or more	3,109,831	139,635,627	45	Mar-1986
Less than 12″	34,253,050	484,882,592	14	Mar-1994

It is also likely that the OHP and HP mains that serve Sparrows Point are more expensive than lower-pressure mains of similar size and vintage. If Sparrows Point is to be charged only for the costs of the classes of equipment serving the facility, the costs of that equipment should reflect the costs of providing HP and OHP service.

Q: Are the mains costs reported in SP DR 1-16 consistent with those used in the Alternative Cost-of-Service Study?

A: No. The total main investment listed in SP DR 1-16 add up to very close to the cost used in the cost-of-service studies. The difference may be in part to the total of $1.4 million of "unspecified" costs reported in SP DR 1-16 for some 14 years. See Table 3[4]

The difference in the reported costs of mains greater than or equal to 12 inches is much larger. If the data in SP DR 1-16 are correct, it appears that the Alternative Cost-of-Service Study understates the cost of mains larger than 12 inches by about $2.7 million.

Table 3: Comparison of Mains Costs by Source (Dollars)

	Total Mains	Greater Than or Equal to 12″	Greater Than 12″
From SP DR 1-16	624,518,219	139,635,627	484,882,592
From COSS	625,453,639	136,974,347	488,479,292
Difference	935,420	−2,661,280	3,596,700

Q: Are there any logical fallacies with the Alternative Cost-of-Service Study?

A: Yes. The mains allocation in the Alternative Cost-of-Service Study does not reasonably reflect the relative cost of serving various rate classes. For example, had more 12-inch mains (rather than smaller mains) been used to serve areas remote from Sparrow Point, the allocation of costs to Schedule SP would increase. Depending on the costs of the various size mains, the allocation to other classes might actually decrease.

Q: Does this conclude your testimony?

A: Yes.

[4]These unspecified costs are exact multiples of $67,279 in 13 of the 14 years. Bell clamps are also listed in SP DR 1-16. It is not clear whether BG&E intends that the $11.4 million of bell clamps be included in the mains account in the cost-of-service studies.