COMMMMONWEALTH OF MASSACHUSETTS

BEFORE THE DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

	)	
the Berkshire Gas Company	)	**Docket No. DTE 01-56**
	)	

DIRECT TESTIMONY OF

PAUL CHERNICK

ON BEHALF OF

OFFICE OF THE ATTORNEY GENERAL

Resource Insight, Inc.

OCTOBER 17, 2001

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ATTACHMENTS

I. Identification and Qualifications

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

A: I am Paul L. Chernick. I am president of Resource Insight, Inc., 347 Broadway, Cambridge, Massachusetts.

Q: Summarize your professional education and experience.

A: I received a SB degree from the Massachusetts Institute of Technology in June 1974 from the Civil Engineering Department, and a 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 since August 1990 in my current position at Resource Insight. In those capacities, I have advised a variety of clients on utility matters, including, among other things, the need for, cost of, and cost-effectiveness of prospective new 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; and the valuation of environmental externalities from energy production and use. My resume is attached as Attachment____PLC-1.

Q: Have you testified previously in utility proceedings?

A: Yes. I have testified over one hundred times on utility issues before various regulatory, legislative, and judicial bodies, including numerous appearances before this Department. A detailed list of my previous testimony is contained in my resume.

Q: Have you been involved in rate design and cost allocation?

A: Yes. As listed in my resume, I have testified on electric and gas utility rate design and cost allocation many times, before this Commission and elsewhere.

II. Introduction

Q: What is the purpose of your testimony?

A: The purpose of my testimony is (1) to review the Company's proposal to replace its Proportional Responsibility allocator for gas supply costs with its version of the so-called Market-Based Allocator (MBA), and (2) to review its proposal to implement a Cost of Gas Adjustment Clause (CGAC) with rates that vary by load-factor.

Q: Please summarize your conclusions about the use of the MBA in the allocation of gas supply costs.

A: The Company's proposal has a number of fundamental problems, namely:

- There is no relationship between the Company's proposed allocator and competitive pricing.
- The Company's allocation method is not based on a realistic model of the design, planning and operation of a gas system.
- The Company's approach would tend to underprice baseload use and allocate excessive costs to low-load-factor (low-LF) loads.

The Company misrepresents its proposal as an "improvement" over the Proportional Responsibility (PR) allocator that the Company has used previously, claiming that it better reflects market pricing and the relationship between market price and customer load factor. Neither the MBA, as applied by the Company, nor the PR allocator match competitive pricing. If that is the Company's primary purpose, then it should take an entirely different approach and base its pricing on forecasts of market price for different load shapes. If the purpose is to improve the allocation of the utility's embedded costs, then the Company should develop a method that is based on a realistic view of utility planning and operations. Instead, the Company has proposed a mix-and-match approach, which may or may not depend on historic prices, may or may not raise rates to low-LF customers and may or may not be much different from the PR allocator, but has nothing directly to do with market pricing and does not accurately reflect utility cost incurrence.

Q: Please summarize your conclusions about the Company's proposed load-factor CGAC.

A: A load-factor CGAC based on the MBA will not properly allocate costs nor provide an accurate pricing signal.

In addition, the process proposed by the Company to set this load-factor CGAC will not permit full technical review of the MBA-based allocations. These allocations can have a significant impact on rates and involve a complex calculation that requires many subjective judgments about the categorization of sendout and gas supplies and about the assignments of supplies and costs. The Company has produced at least three versions of the load-factor CGAC that it wants to implement in this proceeding, the last on October 10, and none of these

have been adequately documented.[1] Further, any changes the Company might propose in the future would be made in CGAC proceedings that are too brief and expedited to allow for meaningful review. Approval by the Department of this proposal would give the Company too much discretion in gas pricing.

Q: How does the Company's proposal underprice base use and misallocate costs?

A: It misallocates costs by:

- assigning all excess capacity to the non-base portion of load, ignoring the risks associated with serving the base-load customers,
- assuming that the utility acquires pipeline and storage contracts to meet a single design day peak,
- understating the capacity requirements of base use by treating the average daily demand in a month as though it were the same every day,
- failing to credit the interruptible, off-system sales and capacity release margins against the cost of the pipeline and storage capacity that is less than fully used by firm customers, and
- assigning higher-than-average pipeline costs to storage refill.

III. Description of the MBA and the Company's Proposal

Q: How does the MBA differ conceptually from the PR allocation method?

A: Conceptually, the MBA allocates gas costs to load segments, assigning certain of the resources sent out on a particular day to a particular type of load. The PR,

[1]Although more detailed, the documentation supplied at this late date still did not reveal the source of certain key allocations.

on the other hand, allocates all gas used on a particular day to all consumption on that day.

Q: In general terms, how is an MBA allocator calculated?

A: The first step in the derivation of the MBA is to determine the portion of the system load curve that can be characterized as "base use." Conceptually, this base load is the minimum load on the system, which can be served by a supply at a 100% load factor. The Company refers to the remainder of the system load as "remaining load." This terminology gives the impression that this load is a relatively minor portion of the Company's total sales. In fact, the non-base load constitutes the bulk of the load (70% of total sendout, in the case of Berkshire's MBA calculation); therefore, I will refer to it as "bulk load" in my testimony.

In the MBA, costs are generally assigned in the following steps:

- dispatch the Company's supplies on a daily basis to determine the total quantity needed and the cost for each supply;
- rank the supplies by some measure of cost;
- assign the supplies with lowest cost to the base load;
- allocate the base load demand and commodity costs among rate classes based on class contribution to monthly base load;
- assign the remainder of the gas costs to the bulk load. The costs are allocated among rate classes based on a variety of allocators, including, for example, a Proportional Responsibility allocator.

The MBA is not really a distinct, well-defined *method*, since the approach can be implemented in vastly different ways. There can be differences in all the elements of the calculation, including differences in the definition of base use, in the determination of the costs of resources, in the assignments of resources and costs to base use, storage refill and interruptible and off-system sales, and in the

basis for allocation of the demand and commodity costs of each load block to rate classes.

Q: Please describe briefly the version of the MBA that the Company is proposing in this proceeding:

A: The Company is proposing what its witness on this issue, Mr. Harrison, describes as a "simplified" MBA. It assigns sendouts and costs on an average monthly, rather than daily, basis; it considers only two categories of supply, pipeline and "other;" and it assigns commodity costs and demand costs independently of each other.

Mr. Harrison's calculation involves the following steps, not all of which are documented in his testimony or workpapers:

1. He defines base use as follows:
   - Class base use in each month is the minimum of (1) the estimated total sendout for that class in that month and (2) the class average daily sendout in July and August multiplied by the number of days in the month.
   - The total system base use in each month is the sum of the rate class base use sendouts in that month

   Base use excludes the pipeline supply used in the summer to refill storage.
2. He assigns commodity costs as follows:
   - Based on the results of a daily dispatch model, he tabulates monthly total costs and sendouts for two categories of supplies: "pipeline" and "other." The Company provides no documentation of the daily dispatch model results on which the MBA is based. Since Harrison's calculation is based on test year costs, it is not clear why he even needs a dispatch model for his MBA calculation.

- He assigns monthly costs to interruptible sales and removes the costs and volumes from the dispatch total. The basis for the cost assignments is not documented.
- He assigns monthly costs to storage refill and removes the costs and volumes from the dispatch total. Mr. Harrison assigns, on average, higher cost pipeline supplies to storage refill than to customer summer use, but he does not provide the basis for this assignment.
- He sets base load commodity costs equal to the monthly base use multiplied by the monthly average commodity cost of pipeline (excluding the costs assigned to storage refill, but not the interruptible costs). In what appears to be a computational error, Mr. Harrison does not remove the lower-cost pipeline sendout assigned to interruptible sales before calculating unit gas costs for firm baseload.
- He assigns the remaining commodity costs (consisting of a large portion of pipeline sendout as well as all "other" sendout) to the bulk load. Under the Company's methodology, the pipeline sendout assigned to base load and to bulk load (except for storage refill) have the same unit cost.
- The monthly base use and bulk load commodity costs are allocated across rate classes based on monthly class usage in each load block.

3. Mr. Harrison assigns demand costs as follows:
   - He determines the total Maximum Daily Quantity (MDQ) and demand costs for pipeline and "other" resources. The basis for these totals, including the MDQ and demand costs of each separate resource, is not documented.
   - He calculates the unit cost of pipeline capacity as total pipeline demand charges divided by total MDQ of pipeline.

- He calculates base-use demand cost as the unit cost of pipeline multiplied by the base-use demand.
- He allocates base use demand charges evenly over months, $75,904 per month. Within each month, he allocates base-use demand charges across rate classes in proportion to class base sendout in each month.
- He assigns to the bulk load the remaining pipeline demand costs and all of the demand costs of "Other than Pipeline" resources. The bulk load and the base use pay the same unit demand cost for pipeline.
- These remaining demand charges are assigned across the months based on a normal-year PR allocator, and allocated to rate class according to design day load. Both Mr. Harrison (Exh. BG-19, p. 12) and Mr. Normand (Exh. BG-15, p. 15) incorrectly state that the allocation to rate class is based on the class sendout in each month.

4. For use in the cost study, Mr. Harrison calculates demand and commodity allocators as the sum of base-use and bulk-load demand and commodity costs for each rate class.

5. Mr. Harrison uses the results of his MBA-based allocation of costs to rate class and season to develop a load-factor CGAC as follows:
   - He groups the rate classes into two categories: a high-LF group and a low-LF group. As a result of Mr. Harrison's grouping, high-LF rate classes have load factors of 48% or over and low-LF rate classes have load factors of 28% or lower (Exh. BG-20, JLH-3, p. 9).
   - He calculates summer and winter total gas costs (demand plus commodity costs) for each load-factor group and for the system as a whole.
   - He calculates summer and winter average cost of gas for each load-factor group by dividing the group's gas costs by its sales and for the

system as a whole by dividing system total gas costs by system firm sales.

- For each load-factor group, he calculates summer and winter ratios by dividing each load-factor group's average cost by the system average cost of gas for the period.
- The resulting ratios are applied to the seasonal average Gas Adjustment Factor (GAF) to create a CGAC with different rates for the two load factor groups.

The load-factor ratios calculated by Mr. Harrison are not the ones actually used in the Company's CGAC proposal, as I explain below.

Q: Would Mr. Harrison's MBA approach necessarily have the effect he intends?

A: No. For example, assume the utility had one supply and two customers: customer A, who consumes 1 MMBtu/day in all winter months, and customer B, who consumes 1 MMBtu/day in all summer months. The Company's MBA would treat the two customers equally, even though the summer customer has an infinite load factor and the other has a 50% load factor (response to information request DOER-2-2). While this result could be a reasonable allocator of utility embedded costs, it would not match the market. The market would assign some capacity costs to the summer customer, but not as much as the Company's MBA does.

Mr. Harrison's application of his MBA approach to actual cost and sendout also has some unexpected results. For example,

- Unit commodity cost for low-LF customers is the same as or lower than the cost for high LF customers in all months except April, May and June, as shown in Attachment____PLC-2. In the months when Berkshire uses

only pipeline, both base use and bulk load pay the same average pipeline commodity cost. In winter months, the relative cost is particularly sensitive to the relationship between winter pipeline costs and the cost of stored gas purchased at summer prices.[2]

- The Company's MBA allocation of remaining pipeline demand costs in each month is made using the single design day minus base use, rather than using the normal-year sendout in that month (net of base use), and would be expected to increase allocations to the weather-sensitive loads. It actually does the reverse. Attachment____PLC-3 compares rate class allocation of remaining demand costs under the MBA on design day versus on a normal-year PR.

Q: What *is* the basis for the Company's proposed CGAC load-factor ratios if not Mr. Harrison's calculation?

A: It is not at all clear. Ms. Boucher's calculation of the ratios originally proposed was undocumented and unreviewable. (Exh. BG-26, Schedule JMB-6, Schedule I). All that the Company offered were some contradictory statements about where the ratios came from and Ms. Boucher's assurance that the proposed CGAC ratios were somehow "based on" Mr. Harrison's method and reflected test year data (as do Mr. Harrison's calculations):

> The MBA calculation was derived utilizing test year sales and gas costs. The summer and winter ratios represent the ratio of each load factor MBA gas rate to the average cost of gas during the test year period. (Exh. BG-25, pp. 8-9)

[2]In fact, gas prices rose so dramatically during 2000, the average commodity cost in the winter period is below the summer cost in Mr. Harrison's calculations. (Exh. BG-2, Schedule JLH-3, p. 1).

However, the ratios proposed in Ms. Boucher's testimony were not derivable from Mr. Harrison's calculations. In fact, Mr. Harrison (Exh. BG-19, p. 15) stated that his MBA calculations, based on test year data, have "limited relevance to the pricing question in the current rate case," since the CGAC is forward-looking.

Only after the Attorney General pressed repeatedly for documentation, did the Company realize that that the ratios it had filed were wrong. The Company has now provided what it claims to be the correct ratios, but they are also inadequately documented and provided too late to allow for adequate review. In addition, these corrected ratios *are* apparently based on the test year data that Mr. Harrison believes is "of limited relevance" to the CGAC pricing.

Given that the MBA is not a well-defined method, that the Company has had to make at least three attempts to provide the ratios, that the MBA is a complex calculation which is susceptible to error, that it requires many subjective judgments and that it can result in significant impacts on bills, the Company's failure to document the basis for these ratios is reason enough to reject the proposal in this proceeding.

Q: What corrections did Ms. Boucher make to the proposed load-factor ratios?

A: It is my understanding that Ms. Boucher made the following two corrections:

- applied the MBA results that the Company has actually filed in this case, rather than an earlier version of Mr. Harrison's calculation;
- included "indirect" costs flowed through the CGAC that were not reflected in Mr. Harrison's calculations, namely bad debt, local production and storage plant costs (including the new LNG facility), and gas acquisition expense.

Q: Have you reviewed the documentation that the Company has provided on the basis for its corrected load-factor ratios?

A: Yes. The Company's documentation consists of an electronic file: Schedule I workpaper.xls. This workpaper does not show how the rate class sales data and cost allocations are linked to Mr. Harrison's calculations. In addition, Ms. Boucher's calculation relies on but does not document the allocation of indirect costs among rate classes.

IV. MBA and the Competitive Market

Q: What is the Company's justification for its proposal to use the MBA in the cost-of-service study and CGAC?

A: Mr. Harrison asserts that the competitive market for gas sales requires the use of his MBA approach. He bases this assertion on the following claims:

- The proportional responsibility (PR) allocation method is not appropriate for the competitive market, and must be replaced by the MBA. PR pricing provides the same seasonal rate for all customers, while the MBA approach recognizes that load factor affects cost to serve.
- Under the Company's MBA approach, the Company will be able to reduce rates to high-LF customers and prevent them from switching to marketers.
- The migration of low-cost customers to marketers will cause the rates of low-LF sales customers to spiral upwards. Therefore, the Company's proposal to raise prices now to low-LF customers will benefit them in the long run.

Mr. Harrison presents a hypothetical to support his claim that unless the MBA load-factor CGAC is implemented, the utility will lose low-cost customers and the high-cost customers will suffer as a result.

Q: Please describe Mr. Harrison's hypothetical comparison of the marketer's pricing with the utility pricing.

A: Mr. Harrison presents a hypothetical that assumes five customers, five load periods and two resources, a baseload source and a peaking supply. The types of customers range from an extremely low-LF customer E whose entire annual consumption consists of 20 Dth in the peak period and a high-LF customer who uses 20 Dth in all five periods of the year.

He assumes a competitive marketer would serve each customer's load using one of the two supplies but never a mix of the two, and he computes the marketer's price to each customer as the cost of the least-expensive single option plus a 10% profit margin. He assumes the utility will charge all sales customers the same price, that is, the annual average cost of gas.

In his example, the marketer is able to underbid the utility until all but the customer with the lowest load factor leaves the utility system. As high-LF, low-cost customers migrate from the utility system, the average cost and therefore the price to remaining customers increases.

Q: Do you agree with Mr. Harrison that his MBA approach will provide a more accurate pricing signal that the PR method?

A: No. The dichotomy he draws between the PR and the MBA is a false one. The MBA approach requires an allocator for capacity once the costs have been assigned to load blocks. Utilities have proposed to use the PR allocator with the MBA. The CGAC, whether based on a PR allocation of demand costs or the Company's MBA approach, will result in allocations that generally favor high-LF customers. The MBA calculation itself is not a "load-factor" allocation. The Company's proposal is load-factor-based only in that it relies on a categorization of rate classes as high- and low-LF, calculates unit costs for each

load-factor group, and calculates ratios of those unit costs for each load-factor group. The same could be done using the PR allocation method.

It is realistic to expect that the market price for low-LF loads will tend to be higher than the price for high-LF loads. That does not mean that a pricing approach is an improvement just because it raises rates to low-LF customers. The "Market-Based Allocator" is misnamed. Like the PR method, Mr. Harrison's MBA approach reflects utility costs, not the market. If the Company's true purpose is to match competitive pricing, the Company should be working to improve utility pricing by tying utility rates to actual market prices, taking into consideration the practical complications associated with coordinating market-based-pricing with utility cost recovery and risk allocation.

Q: Do you agree with Mr. Harrison that the MBA approach is an improvement if it prevents migration of high-LF customers to marketers?

A: No. The objective should not be to retain the high-LF customers; it should be to retain them at a margin or lose them. The Company should endeavor to price *all* customers correctly, not to subsidize one class of customers at the expense of another and to the detriment of the developing competitive market. The arguments Mr. Harrison advances in favor of not burdening the high-LF classes could apply just as well to low-LF classes. If the Company's proposal is adopted, low-LF customers may end up subsidizing high-LF customers; if so, marketers will find it easier to attract large heating customers, just as they will find it harder to attract base-load customers.

Q: Does Mr. Harrison's hypothetical demonstrate that his MBA approach is an improvement over the Company's previous method?

A: No. Mr. Harrison's claims to the contrary, his hypothetical does not demonstrate "the need for revised gas cost allocation methods." (Exh. BG-20, Schedule JLH-

2). It is oversimplified and irrelevant, and if anything demonstrates that his MBA proposal misallocates costs.

Q: Why does the MBA approach fail to match the market?

A: The Company's MBA approach does not reflect the operation of the competitive *market*, since it

- reflects utility costs, not market pricing. Utility costs can be higher or lower than the market.
- ignores important complications of a real gas system.
- overlooks many of the costs of supplying base use and overprices low-LF loads.

Q: How do utility costs compare to the competitive price?

A: The Company may have higher or lower costs than its competition for reasons that have nothing to do with how costs are allocated among rate classes.

Gas utilities plan for the total of their loads, not for a series of separate loads. Serving an aggregation of different load shapes can be less expensive than serving each type of load in isolation. The totality of the utility's supply mix provides diversity (by contract pricing and delivery terms, supply area, and delivery pipeline) and back-up supplies to all customers. Even when firm loads can be met with just base supplies (i.e., those nominally available 365 days per year and economic for high-load-factor dispatch), a storage supply may be used to work around a pipeline maintenance outage, absorb load swings, or take advantage of commodity price fluctuations.

Significant variation in gas costs can arise from the history embedded in current gas supplies. One pipeline contract, with a specific split of variable and demand costs, and a particular escalation formula, may be well below market cost in the rate year. A second base contract may be above market cost.

In addition to contracts that are simply uneconomic due to changed conditions, contracts using lagged price indices may be bargains in some years and over-priced in others. Similarly, the utility may find itself with some capacity obligations that are in excess of planning requirements, either for total capacity or for particular types of capacity, due to uncertainty and planning errors. This excess is as likely to be due to base loads as weather-sensitive loads.

Q: What are some of the important complications of a real gas system that Mr. Harrison's approach ignores?

A: First, in treating seasonal loads differently from base loads, he overlooks the ability of the Company to increase the effective load factor on its system. In particular, the Company acquires storage capacity to even out the load on its system. In effect, by injecting gas into storage in the summer for use in the winter, the Company shifts load (measured at the point of gas acquisition) from the winter to summer. Interruptible sales, off-system sales and capacity release in the off-peak months also increase system load factor.

Using sendout data provided by Mr. Harrison in Exh. BG-20, Schedule JLH-3, I calculated an effective system monthly load, taking into account storage (both injections and withdrawals) and interruptible sales. As shown in Attachment____PLC-4, these two uses of gas even out system load substantially. When they are taken into account, the ratio of maximum winter monthly load to minimum monthly load falls from almost 7-to-1 to less than 2-to-1, clearly illustrating the ability of a utility to improve its load factor.

Second, the Company's approach ignores many of the costs of supplying base use, including:

- the planning risk associated with serving base-load customers, including costs related to the planning errors, bad decisions, and bad luck, which can result in excess capacity,
- the cost of supplying the daily fluctuation in base use, which results in load factor lower than the 100% Mr. Harrison assumes, and
- the need for back-up supplies.

Q: Could marketers actually price sales to base use at the gas prices developed by the Company's MBA approach?

A: No. In order to meet the prices developed by the Company's MBA method for the Company's definition of "base use," a marketer would have to:

- acquire sufficient resources to meet potential changes in base use and then absorb the costs of any resources in excess of actual use;
- price sales for base use as though it had a 100% load factor, and provide additional capacity required by this load without charge;
- share margins on interruptible sales with the "base use" sales, even though those sales would not pay for enough capacity to support their own use, let alone interruptible sales;
- charge no additional margin or profit on "base-load" sales to cover any of the above costs, or to compensate for the risk that the "base-load" sales will decline due to customer operating levels and changes in gas supplier.

In a competitive market, marketers are free to assume these costs and risks, and to absorb the resulting losses. It is unlikely that they would choose to do so for any length of time. If the Company wishes to engage in this behavior, it should do so through an unregulated subsidiary, and face the consequences marketers would face. The Company should not be allowed to manipulate

pricing to favor specific customers, unless its shareholders are willing to pay for those subsidies.

Q: In pricing gas for a high-LF firm load with no weather sensitivity, would a marketer simply flow through the costs of only one or two base supplies?

A: Not generally. For the reasons discussed above, the marketer would need a variety of supplies, probably including storage, to meet fluctuations in availability, demand, and price.

Q: How could a marketer recover costs of excess supply?

A: The marketer may not be able to recover these excess-contract costs at all, if it depends on short-term contract sales. However, reliability-sensitive customers, especially those most concerned with price fluctuations, may sign relatively long-term contracts that reserve more capacity than they wind up needing, and agree to price formulae that may not match short-term fluctuations. There is no reason to suppose that high-LF customers would be more or less receptive to these long-term contracts than low-LF customers. Thus, if the marketer recovered these costs at all, it would likely do so equally from customers of all load shapes.

Q: Why does Mr. Harrison's hypothetical fail to support his arguments?

A: For several reasons:

- The hypothetical is irrelevant. It merely demonstrates that market pricing is better than charging the same average cost price to all customers at all times, a long-discarded pricing structure. Utilities in Massachusetts have reflected load factor in gas cost allocations for many years. Mr. Harrison does not compare "market price" with any of the allocation methods that are actually at issue in this case: his MBA approach, the PR approach, or the pricing method the Company has actually been using.

- The hypothetical is based on an unrealistic view of the gas market and an over-simplified view of the costs to the utility and to the marketer of supplying gas. It ignores multiple resources, for example, storage which effectively raises the load factor of a weather-sensitive customer. It ignores interruptible sales, which makes use of excess pipeline capacity in the off-peak periods. It ignores many of the marketer's costs of supplying gas, including the risks associated with serving base-load customers.

Q: Have you revised Mr. Harrison's hypothetical to give a more accurate representation of the Company's MBA?

A: Yes. Applying the same assumptions about gas supplies, customer loads and marketer's pricing and assuming that the Period 1 usage is the customer's design day peak, I calculated the unit price to each customer that would be charged under the Company's MBA and under the PR-based CGAC. Attachment____PLC-5 provides the results of my calculations.[3]

Q: What can you conclude from your calculation of the effects of the Company's MBA and the PR allocation in Mr. Harrison's hypothetical?

A: My calculation indicates the following:

- Both MBA and PR allocators result in prices below the marketer's prices.
- The MBA prices the high-LF customers below market cost, not just below market price.
- The MBA overcharges the customer with the worst load factor. This customer has load only in the highest use month, can be served most cheaply with the peaking supply only, yet under the MBA must pay for some pipeline capacity.

[3]Following Mr. Harrison's hypothetical, my calculation does notin not grouping the five customers by load-factor or the five periods into two seasons.

In summary, Mr. Harrison's hypothetical demonstrates the fundamental arbitrariness of his proposed MBA.

V. Additional Problems in the MBA Allocation

A. Assignment of All Excess Capacity to the Bulk Load

Q: Does the Company have excess capacity?

A: According to the data used by Mr. Harrison in his MBA calculations (Exh. BG-20, Schedule JLH-2, pp. 7, 9), the Company's capacity is about 40% above design day peak. It is not clear why the Company needs any reserve above design day load.

Q: Why should some of this excess capacity be allocated to the base load?

A: There are many ways in which base load can contribute to excess capacity, for example:

- acquisition of supplies to meet potential growth within a reasonable timeframe,
- the loss of a firm base-load sales customer,
- the need to meet daily fluctuations in base use,
- the need for back-up supplies in case of pipeline supply disruptions, and
- the need for additional pipeline to take advantage of price fluctuations.

Q: Is it appropriate to allocate all LNG costs in the CGAC to the bulk load?

A: No. The capacity available on the Company's system appears to be vastly surplus to its current needs. The LNG facility was built at least in part to "provide supply margins for growth well into the next century." (AG-1-9, Remarks of Scott S. Robinson President and CEO at the Berkshire Energy Resources Annual Meeting of Shareholders, November 4, 1999). The current

surplus must be taken into account in determining whether the costs of the LNG facility should be fully recovered and how they should be allocated among rate classes.[4]

B. Allocation of Bulk Load Supply Costs on Design Day Load

Q: How does the Company allocate the bulk supply costs among customer classes?

A: The Company allocates all storage and much of pipeline demand costs to rate classes based on the single design day peak load (excluding base use).

Q: Does Mr. Harrison offer any basis for allocation of capacity costs on design day loads.

A: No. In fact, both Harrison (Exh. 19, p. 12) and Normand (Exh. BG-15, p. 15) state that the bulk load costs are allocated to classes in each month based on the classes share of bulk sendout in that month.

Q: Is it appropriate to allocate all bulk load demand costs on design day load?

A: No. Most gas-supply capacity costs are incurred for normal or actual loads. Utilities generally acquire total capacity sufficient to cover design criteria (e.g., design day, design winter), but select the portion of capacity that is pipeline and storage based on minimizing costs for normal loads. The remainder of the design load is met with LNG and propane. Pipeline and storage supplies have higher capacity costs (in $/year per Dth/day of capacity), but lower commodity costs, than the peaking supplies. Least-cost planning requires the utility to acquire pipeline and storage resources with high capacity costs and low commodity costs to meet load that must be met many days of most years;

[4]The majority of the costs of the new LNG facility are designated by the Company as distribution-related.

peaking supplies are acquired to meet the loads that occur only a few days of a normal year, or especially only a day or two per decade. Since most of the utility's capacity costs are associated with the pipeline and storage contracts, normal years are more important in determining capacity costs than are design years. At most, design loads are relevant to the allocation of capacity costs for the peaking supplies.

Q: What is the effect of the use of design loads for allocating bulk capacity costs?

A: In general, applying a design day allocator to pipeline and storage demand costs overstates the fraction of bulk-capacity costs that are due to weather-sensitive load, and overstates the allocation to heating-dominated classes.

Q: Is the normal-year Proportional Responsibility allocator the appropriate basis for allocating these demand costs?

A: No. Pipeline including the portion supplying storage and non-core sales is a high-load-factor supply. The PR allocator assigns too high a percentage of these costs to the peak winter months.

C. "Base Use" Load Factors

Q: How did the Company understate the base pipeline capacity assigned to the base use?

A: Berkshire Gas defines base use essentially as the July-August average daily load (that is, 3,948.5 Mcf) and assumes that only 3,948 Mcf of capacity is needed by the firm load every day to serve the entire load for July and August. The highest daily load in July and August will almost always exceed the average daily load in that period. On days with high base loads, the Company must borrow capacity from the bulk load, or provide extra capacity. In Mr. Harrison's

calculations, though, the bulk load ends up paying for the capacity that serves the fluctuations in base use.

D. The Treatment of Interruptible, Off-System Sales and Capacity Release Margins

Q: Does the Company allocate any interruptible, off-system sales and capacity release margins in the cost-of-service study and the CGAC?

A: In the cost-of-service study, the Company allocates interruptible margins to all firm sales classes in proportion to their allocation of demand costs under the MBA. (Exh. BG-17, Schedule PMN-8, p. 10-1). It is not clear to me how other non-core sales margins are allocated. In the case of the CGAC, non-core sales margins are assigned to the summer and winter periods based on a normal-year PR allocator and allocated to all sales customers on a $/therm basis. No margins are reflected in Mr. Harrison's calculation of MBA-based load-factor ratios.

Q: Are these allocations of interruptible margins consistent with the MBA assignment of gas demand costs?

A: No. The Company allocates a share of interruptible margins to "base use" consumption, even though base use is not allocated the resources that could serve interruptible sales. Interruptible sales are made possible by capacity that is excess to firm requirements, including unused storage capacity in normal or warmer weather, and pipeline capacity that is not fully utilized on low-load days. The Company does not allocate enough capacity to the base load to serve that load, let alone make interruptible sales. The base use is assigned no excess capacity and no storage, and therefore has no spare capacity with which to make interruptible sales.

Q: Do the load-factor ratios to be applied in the CGAC do anything to correct this misallocation?

A: No. Mr. Harrison's derivation of load-factor ratios gives no credit to the bulk load for the value to the Company of unused capacity or for the misallocation of the ratepayer's share of non-core sales margins.

Q: How should the MBA-based ratios be calculated to reflect the value of unused capacity?

A: The calculation should credit all non-core sales margins to the bulk load.[5] Conceptually, if the Company is able to sell off all unused capacity at cost, then there is no capacity cost difference between high- and low-LF customers.

Q: How should margins be allocated among rate classes?

A: Margins should be allocated on a measure of class contribution to allowing such transactions, such as the difference between the annual supply capability of the capacity allocated to each class and the class's own load. The classes with the highest allocations of the bulk supply would thus receive the highest allocations.

E. Assignment of More Expensive Pipeline Supplies to Storage Refill

Q: How did the Company determine what costs to assign to storage refill?

A: Mr. Harrison's MBA calculations fill storage with pipeline that has a commodity cost that is higher than average. The Company has provided no documentation of this assignment.

Q: Why is it inappropriate to assign more expensive pipeline supplies to storage refill?

[5]If the base use were allocated a share of excess capacity, it would be appropriate to distribute the margins to both load blocks.

A: While the Company has to meet the demands of its firm customers whenever they occur, whatever the price at the time, it can schedule storage refill for the times when cheaper gas is available.

VI. The Company's Infeasible Proposal of a Load-Factor CGAC

Q: What is the Company's current proposal for the process of allocating gas costs in the CGAC?

A: The Company proposes to charge high- and low-LF customers significantly different GAFs, decide when changes to the load-factor CGAC are called for and implement changes, all without an opportunity for a full technical review. The Department should reject this approach.

Q: Would any version of the gas cost allocation process proposed by the Company constitute appropriate regulatory policy?

A: No. The Company asks the Department to delegate essentially all cost allocation decisions to the Company. The CGA review process is too brief and expedited to allow for meaningful review of the many complex decisions involved in the Company's implementation of the MBA. Consideration of competitive pricing should not be left to a CGAC proceeding.

Q: Can Berkshire's customers expect the Company to apply the MBA in an equitable and accurate manner?

A: No. While the Company's position on the implementation of the MBA is essentially "trust me," the Company's performance does not warrant this deference. In addition, as I discussed above, the Company biased its analysis to understate the costs of serving base load and overstate the cost of serving weather-sensitive loads in several ways.

VII. Conclusions and Recommendations

Q: Please summarize your conclusions.

A: The MBA, and the Company's application of it, are fatally flawed. The resulting allocations are heavily biased against low-LF loads.

The current proceeding does not provide sufficient opportunity for full review of the Company's analysis, let alone correct it. Application of the MBA in the lightly-reviewed CGAC would be even more impractical and inappropriate. Given MBA method is not a well-defined method, and given the many arbitrary, unrealistic, variable and inconsistent decisions utilities could make in implementing the MBA, permitting the Company to apply this approach in the CGA would allow it to allocate gas supply costs in virtually any manner it desires.

Q: What are your recommendations?

A: The Commission should reject the use of the Company's application of the MBA in both the COSS and in the CGAC. The Company should not change its allocation of gas supply costs until it can construct a realistic and reasonable load-shape-based allocator. Developing a workable method that can be implemented in a CGAC is a complicated and important task. Therefore, the Department should establish a generic proceeding to consider whether and how competitive pricing should be implemented in the gas utility industry.

Q: Does this complete your testimony?

A: Yes, at this time. However, I may need to supplement this testimony after further review of the Company's new load-factor ratios and recent discovery responses.