Witness CCS – 5 S Dismukes Cost of Service/Rate Design

Exhibit CCS – 5 S Dismukes Cost of Service/Rate Design

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

In the Matter of the Application of Questar Gas Company to Increase Distribution Non-Gas Rates and Charges and Make Tariff Modifications	**)** **)** **)** **)**	**Docket No. 07-057-13** **Pre-filed Surrebuttal Testimony of David E. Dismukes, Ph.D. For the Committee of Consumer Services**

October 7, 2008

Q. WOULD YOU PLEASE STATE YOUR NAME, TITLE, AND BUSINESS ADDRESS?

A. My name is David E. Dismukes and I am a Consulting Economist with the Acadian Consulting Group. My business address is 6455 Overton Street, Baton Rouge, Louisiana. I am the same person that filed direct and rebuttal testimony on the behalf of the Utah Committee of Consumer Services ("CCS" or "the Committee") on August 18, 2008 and September 22, 2008, respectively.

Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A. The purpose of my surrebuttal testimony is to respond to some of the issues addressed in the rebuttal testimony of the Division of Public Utilities ("DPU" or "the Division"), the Utah Association of Energy Users Intervention Group ("UAE"), and the American Association of Retired Persons ("AARP"), the Salt Lake Community Action Program ("SLCAP"), and the Crossroads Urban Center ("CUC") (collectively, "the Joint Intervenors"). My surrebuttal will focus on what I believe are the three more contentious issues in this filing:

- The appropriate cost allocation factors for small and large diameter mains;
- The proposed revenue spread and class rate increases; and
- Rate design issues related to setting fixed and variable charges, seasonal differentials, and block rate structures.

Q. HOW IS YOUR REBUTTAL TESTIMONY ORGANIZED?

A. After providing a summary of my recommendations, I will address each of the specific surrebuttal areas I previously mentioned.

II. SUMMARY OF RECOMMENDATIONS

Q. CAN YOU SUMMARIZE YOUR POSITIONS REGARDING THE PARTIES' CRITICISM OF YOUR COST OF SERVICE RECOMMENDATION?

A. Yes. I continue to support my original cost of service ("COS") recommendations, particularly those associated with small diameter ("S.D.") mains and large diameter ("L.D.") mains:

(1) My S.D. mains recommendation is reasonable since it:

- Is consistent with the purpose of these assets to move gas to customers.
- Is consistent with many of the Company's line extension policies that incorporate throughput considerations.
- Balances the potential biases and estimation errors that may arise in the Company's original allocation factor estimation process. In addition to the functional reasons given earlier, blending in a small and reasonable throughput factor helps to:
    i. Mitigate for potential estimation errors;
    ii. Mitigate for the high degree of cost variability in the Company's estimates; and
    iii. Mitigate for potential bias issues in the Company's estimates.

(2) My L.D. mains recommendation is reasonable since:

- It is consistent with Commission policy.
- It is consistent with the Company's last rate case.
- The Company has given no meaningful reason for changing its factors from prior rate cases.

Q. CAN YOU SUMMARIZE YOUR POSITION REGARDING THE PARTIES' CRITICISMS OF YOUR REVENUE SPREAD AND RATE DESIGN RECOMMENDATIONS?

A. Yes, I continue to support my original revenue spread and rate design recommendations, and in response to the opposing parties' positions (UAE), note that:

(1) While the rate increases in my proposal are large, they should be balanced against other considerations that include:

a. The long elapsed time since the Commission has had to rule, and effectively "calibrate" rates to the cost of service.

b. The fact that residential customers will see rate increases both as a result of this proceeding, and after this proceeding is complete through the Conservation Enabling Tariff ("CET").

(2) My rate design proposals are reasonable and consistent with economic theory, past Commission policy, and industry practice.

a. Fixed charges need not reflect all fixed costs to be optimal. This is especially true in the presence of a CET.

b. Costs are important for rate design, but are not the only consideration in determining allocations between fixed and

variable charges, seasonal differentials, and usage block rates.

c. Demand characteristics are more important than costs, in determining appropriate block rate structures and, even if costs were overly important, the distribution-level pricing/usage inefficiencies would not outweigh the energy efficiency benefits.

Q. DO YOU HAVE ANY ALTERNATIVE RECOMMENDATIONS GIVEN THE POSITIONS RAISED IN THE PARTIES' REBUTTAL TESTIMONY?

A. Yes. As an alternative position with respect to splitting the GS-1 class, I recommend that if the Commission agrees to study, and develop a usage-based set of rate classes, it preserve the Company's existing rate design as an interim measure with modifications to be offered in the next rate proceeding. It would simply be administratively cumbersome and confusing to ratepayers to change rate structures twice, and could lead to unanticipated consequences, particularly in understanding a variety of issues regarding the performance of the CET during the pilot period.

III. <u>COST ALLOCATION FACTORS</u>

Q. LET'S TURN TO YOUR FIRST REBUTTAL POINT. CAN YOU SUMMARIZE THE DIFFERENCES OF OPINION REGARDING SMALL DIAMETER MAIN COST ALLOCATION FACTORS?

A. Yes. Some of the other parties have taken issue with my recommendations regarding the appropriate allocation factor for S.D. mains costs.[1] As the Commission may recall, I recommended that these

[1] Bateson Rebuttal Testimony, 65-112; and Higgins Rebuttal Testimony, 204-220.

costs be allocated on a 75 percent Distribution Plant Factor Study ("DPFS") basis and 25 percent throughput basis. UAE and the Company disagree with my recommendation and believe that allocating any portion of these costs on a throughput basis, even the relatively small 25 percent I have offered, is generally contrary to cost-causation principles. The DPU has offered an alternative approach that, while having some throughput considerations, is still lacking.

Q. CAN YOU EXPLAIN AGAIN WHY YOU RECOMMENDED USING THE THROUGHPUT COMPONENT?

A. In my direct testimony, I noted that there are three primary reasons for my S.D. mains allocation factor recommendation. First, I would disagree with UAE and the Company that the use of S.D. mains is strictly limited to serving customers and has no volumetric component. Second, the Company's own extension policies recognize throughput considerations in making customer-specific installations of mains and feeders. Third, the Company's approach in developing the DPFS is somewhat involved, is an estimate and is not based upon actual data, and has the possibility for error. I believe that using a small throughput component in the allocation factor helps discipline the cost allocation to reality, not water it down.

Q. WHAT VOLUMETRIC CONSIDERATIONS ARISE IN MAKING THESE INVESTMENTS?

A. As I noted in my direct testimony, S.D. mains, as well as other distribution investments, are developed to move gas to customers. S.D. mains serve both customer- and size-related functions. Clearly, more customers, other things being equal, can result in a greater number of investments in mains, service lines, meters, and the like. However, customers have different usage patterns, and a larger number of customers, with diverse and larger levels of usage, can require larger capacity investments. A large customer, for instance, not only needs a meter, but that customer will need a larger meter, other things equal, to get the natural gas into his or her premise. That customer will also need larger diameter service line(s) and mains to get the gas to his or her premise. Thus, there are both customer-specific and volumetric-specific considerations in serving customers as well as allocating the costs of these investments.

Q. DOES THE COMPANY'S EXTENSION POLICIES RECOGNIZE THIS?

A. Yes, as I noted in my direct testimony, even the Company's own extension policies recognize an individual customer's level of use in making determinations about providing service and allowances for the cost of effectively connecting these customers into the gas distribution system.

Q. DO YOU THINK THE COMPANY'S APPROACH FAILS TO CAPTURE ALL COST-INFLUENCING FACTORS?

A. Somewhat. The Company's DPFS is an estimate, it is not based upon actual data. The approach samples customers that take service across

different meter classes to develop count information on the number of investments made for serving customers like meters, mains, and various types of service lines. The analysis, however, appears to break down somewhat in examining the volumetric considerations of the investments made to serve these customers.

Q. ISN'T ONE OF YOUR JUSTIFICATIONS FOR INCLUDING A VOLUMETRIC WEIGHT BASED UPON STUDY ACCURACY CONCERNS?

A. Yes. It is important for the Commission to keep in mind that the Company's DPFS is an estimate – it is not based upon actual, embedded cost information from each customer class. The Company has sampled customers across a range of meter classes to determine an average cost for serving each type of customer, which in turn is extrapolated to all customers taking service at a given meter class. The problem with the Company's estimates is that they exhibit a very wide range of dispersion. In statistics, a standard deviation is a commonly-recognized measure of data dispersion. If many data points are close to the average, the standard deviation will be small; if many data points are far from the average, then the standard deviation will be large. If all data values are equal, then the standard deviation is zero. In the Company's analysis, the standard deviations, or measures of dispersion, are very large and in some instances, they actually exceed the estimated cost for that meter class.

Q. HAVE YOU PREPARED AN EXAMPLE TO HELP ILLUSTRATE THIS POINT?

A. Yes. Exhibit SR CCS-5.1 provides the Company's average cost estimates for S.D. mains per meter class. The first row, for instance, shows the per customer cost of S.D. mains for those customers taking service at a 250 cubic feet ("c.f.") per hour rating is $926. The column next to this estimate provides the standard deviation, or the dispersion from the estimated per customer cost. The values in this column show that the standard deviations for each of these meter classes are rather large relative to the average estimated cost. In fact, in many instances, the standard deviations are larger than the cost estimates themselves. The skewness of the estimates are also heavily biased to the upper cost level in any given meter class. This upward skewness is more pronounced for the smaller meter classes than the larger ones.

Q. WHAT DOES THIS MEAN RELATIVE TO MR. BATESON'S REBUTTAL THAT YOUR PROPOSAL IS NOT "COST-CAUSATIVE?[2]"

A. I disagree with Mr. Bateson's position[3] and note that the potential bias in the Company's estimates necessitates a blending approach to capture more accurate representations of cost-causative factors. My

[2]Bateson Rebuttal Testimony, 111-112.

[3] Bateson Rebuttal Testimony, 109-112.

recommended blended average is no less cost-causative than the original estimates presented by the Company.

Q. MR. BATESON ALSO NOTES THAT YOUR RECOMMENDATION WOULD ALLOCATE A "SIGNIFICANT LEVEL OF COSTS" TO CUSTOMERS THAT DO NOT TAKE SERVICE AT THE IHP LEVEL.[4] IS THIS TRUE?

A. No, since my throughput factor is based upon distribution throughput as estimated in Exhibit 8.3U of Mr. Bateson's Direct Testimony. Mr. Bateson notes that this factor "…is developed by identifying customers who are <u>not</u> connected to the IHP system.[5]" Thus, his concerns have been addressed.

Q. DOES YOUR APPROACH STRIKE A REASONABLE COMPROMISE IN ACCOUTING FOR THESE VOLUMETRIC CONSIDERATIONS?

A. Yes, my proposal is weighted for the factors I have repeatedly noted in my direct and rebuttal testimony: (1) S.D. mains and service lines do have volumetric considerations given their design to move gas to customers; (2) the Company uses throughput in its own extension policies and practices; and (3) the quality of their estimates necessitate some kind of balancing factor to ensure no one class is unreasonably compromised. My recommendation takes, in large part, the effort made by the Company in estimating the customer-specific nature of these costs in the DPFS and

[4]Bateson Rebuttal Testimony, 110.

[5]Bateson Direct Testimony, 222-223, emphasis in original.

places a 75 percent weight on this process despite its potential shortcomings. Then a 25 percent weight for throughput considerations is blended into the recommendation. This is a fair, reasonable, and more accurate approach than using the Company's estimates from the DPFS alone.

Q. WHAT CONCERNS DID THE COMPANY EXPRESS ABOUT YOUR L.D. MAINS ALLOCATION FACTOR RECOMMENDATION?

A. Mr. Bateson notes that the allocation factor associated with this factor was clearly an issue of judgment.[6] It would also appear that the Company agrees that the recommendations presented by myself, as well as UAE, are within the range of reasonableness. However, the Company seems wedded to the new allocation factor it uses in this proceeding which differs from the one it utilized in its last rate case. The Company believes these factors are more appropriate but has not given any clear reason why the shift in position is more appropriate (other than judgment). Thus, I would recommend the Commission accept my proposed allocation factors for L.D. mains.

IV. <u>REVENUE SPREAD</u>

Q. LET'S TURN TO YOUR SECOND SURREBUTTAL POINT. UAE IS CRITICAL OF YOUR PROPOSAL TO APPLY RATHER SIGNIFICANT

[6] Bateson Rebuttal Testimony, 157-158.

RATE INCREASES TO THE LARGE CUSTOMER CLASSES. CAN YOU EXPLAIN THIS?

A. Yes. My proposal would include a number of significant rate increases for the larger customer classes, particularly those taking interruptible and transportation service. However, I believe two other factors need to be considered in evaluating these proposed increases. First, it has been several years since the Commission has had the opportunity to evaluate the Company's rates relative to its cost of service in a litigated rate case. Thus, it would appear that the rates for several of these customer classes have been allowed to drift considerably from the cost of service over the intervening years and a significant recalibration appears to be necessary. Second, residential and commercial customers have CET obligations in the test year that amount to as much as $11.2 million dollars that are not entirely explicit in the Company's overall cost of service results nor their proposed revenue spread. Larger customer classes, such as the interruptible and transportation customers, do not share these obligations, and while their increases in this proposed case are high, they are limited to one-time increases, not ongoing obligations that residential and small commercial customers will have to bear after this proceeding has concluded and new rates go into effect.

V. <u>RATE DESIGN</u>

Q. LET'S TURN TO YOUR LAST REBUTTAL POINT. CAN YOU DESCRIBE THE MAIN AREAS OF CONTENTION REGARDING YOUR

RATE DESIGN PROPOSALS AND THOSE OFFERED BY THE COMPANY?

A. The Company disagrees with my proposals to: (a) maintain the BSF charges at their current rates; (b) transform the current GS class into a GS and GS-L (large) class; (c) preserve existing seasonal differentials; and (d) eliminate the declining block rates. These are also proposals that I have in common with the Division and the Joint Intervenors.

Q. MR. BATESON NOTES THAT THESE RATE DESIGN ISSUES ARE ALL RELATED. DO YOU AGREE?

A. Yes. Modern utility pricing theory is primarily concerned with the development of optimal tariff design, which over the years has become almost exclusively dominated by a form of pricing referred to as a "two-part tariff," sometimes referred to as a non-linear (or non-uniform) pricing approach. Once a class revenue requirement is established, the goal for regulators should be one that sets the most appropriate rates based upon various efficiency and equity considerations. Balancing the weight of how costs are recovered between fixed rates, variable rates, block rates, and seasonal rates are all integrated parts of that process.

Q. WHAT IS THE APPROPRIATE ROLE OF COSTS IN SETTING RATES BASED UPON A TWO-PART TARIFF?

A. Cost can be instructive in establishing a baseline upon which prices and cost recovery can be considered. But contrary to the Company's position,

rate components developed under a two-part tariff do not have to be based solely upon component costs in order to be optimal (i.e., fixed costs need not equal fixed rates, variable costs need not equal variable rates, etc.). This "cost-causation" argument is a common mischaracterization that unfortunately gets repeated in rate case after rate case across the country in determining the appropriate balance between fixed charges and block rates within any given class. Appropriate rate setting in the context of a two-part tariff typically has more to do with consumer demand than it does with cost.

Q. IF COST CONSIDERATIONS WERE INCORPORATED INTO THE ANALYSIS, WHAT TYPE OF COSTS SHOULD BE EXAMINED?

A. Marginal costs are the more appropriate costs to be examined in this instance, not average costs. The Company has provided no marginal cost study to justify a declining block rate structure, nor any other rate structure in this proceeding. There are also a variety of short-run and long-run considerations that should be factored into this analysis. All too often, the purported cost-supporting arguments for certain rates structures places overwhelming emphasis on short-run static considerations and not longer-run dynamic ones.

Q. HAS THE COMMISSION RECOGNIZED THAT MARGINAL COSTS ARE MORE APPROPRIATE FOR EXAMINING BLOCK RATE STRUCTURES?

A. Yes, in the last Rocky Mountain Power rate case, the Commission found that "… marginal cost information can and should be used to guide rate design."[7] The Commission, in full, noted:

> While we continue to rely on embedded cost-of-service analysis for determining class revenues, we concur with the Company, Committee and AARP that marginal cost information can and should be used to guide rate design. Indeed, we note the Company's originally filed tail block rate for residential customers was 10.2 cents per kWh and the uncon-tested peak rate proposed for the irrigation class is 10.3 cents per kWh. We agree with AARP that achieving intra-class equity and proper price signals includes more than collecting revenues based on a "snap shot" embedded cost-of-service study but also recognizes the dynamic process that starts once rates are set.

Q. HOW SHOULD FIXED AND VARIABLE CHARGES BE DETERMINED IN AN OPTIMAL TWO-PART TARIFF?

A. A challenge in determining appropriate rates in declining cost industries rests with setting the appropriate balance between fixed and variable charges subject to a regulated firm's budget constraint (i.e., its allowed return on and of its investment). As I noted before, marginal costs can be a starting point for establishing variable rates. Mark-ups (or discounts), relative to these marginal costs, should then be examined in order to determine an optimal means of transferring consumer surplus to the regulated utility, provided that consumer welfare is maximized. In other

[7] In the Matter of the Application of PacifiCorp for Approval of its Proposed Electric Service Schedules and Electric Service Regulations. Docket No. 06-035-21. Utah Public Service Commission. December 1, 2006, Issued

words, we can examine a variety of pricing strategies that use different fixed-variable price combinations so long as we don't (a) price these so high we create customer harm; (b) set price combinations that drive consumers out of the market (i.e., inefficient bypass, fuel switching, or deprivation of service); and (c) set prices which prevent a utility from meeting their budget constraint (i.e., fixed cost recovery). Holding costs constant, the CET virtually ensures the last provision is always met since its serves as a tax on customers to guarantee the Company always obtains its allowed revenue.

Q. SO IS THERE ANY MERIT FROM A COST-CAUSATION PERSPECTIVE TO INCREASE THE COMPANY'S CUSTOMER CHARGE?

A. Strictly speaking, no. The assignment of cost recovery between fixed and variable charges, and the establishment of optimal tariffs (within a customer class), do not need to use cost as the primary justification. Pricing relative to consumer tastes and preferences and regulatory policies goals are equally, if not more important considerations.

Q. DO YOU AGREE WITH MR. BATESON'S AND MR. ROBINSON'S REBUTTAL POSITION THAT THE COMPANY'S AVERAGE COST ANALYSIS ("COST CURVE ANALYSIS") SUPPORTS THE DECLINING BLOCK RATE STRUCTURE?

A. No. As I noted before, costs need not be the only justification for any type of block rate structure once the overall class cost obligations have been

determined. Further, the appropriate cost measure to consult would be marginal cost, and from there, an examination of consumer preferences and overall policy goals to determine the appropriate mark-up (or discounts) relative to marginal cost. The Company's average cost analysis is simply misplaced in this process and does not serve as an adequate basis for making price decisions in this proceeding. Furthermore, the average cost analysis provided by the Company is an inaccurate and questionable mathematical construct that is presented in a misleading light. The analysis purports to be stochastic when in fact it is deterministic, it fails to examine average costs across a range of cost and quantity observations, is inherently static in nature, and imposes an unsupported functional relationship that misrepresents what the Company has estimated in its cost of service study.

Q. HAS THE UTAH COMMISSION RECOGNIZED THE ROLE OF RATE DESIGN IN ENERGY EFFICENCY?

A. Yes. In a 1999 Rocky Mountain Power case, the Commission noted:

> We will continue an effort of many years to flatten rate structures in the interest of cost-based rates, simplicity, and conservation. In accordance with previous Commission orders, we permit declining block rates only if cost-based; and then only if other ratemaking objectives are attained. We apply this policy here, and therefore will avoid, where reasonable, reducing tailblock rates.[8]

[8] In the Matter of the Investigation Into the Reasonableness of Rates and Charges of PacifiCorp, dba Utah Power & Light Company. Docket No. 97-035-01. Utah Public Service Commission. March 4, 1999, Issued.

Q. HAS NARUC RECOGNIZED THE DEFFICIENCY OF NATURAL GAS DECLINING BLOCK RATE DESIGNS?

A. Yes. NARUC recognized the deficiencies of declining block rates as early as 1981 in the development of its Gas Rate Design manual. The manual notes that "under conditions of supply shortages and high gas costs, this type of rate structure does not encourage efficient use of gas."[9]

Q. ARE THERE ANY FEDERAL PUBLIC POLICIES THAT HAVE ATTEMPTED TO DISCOURAGE THESE PRACTICES?

A. Yes. The Public Utilities Regulatory Policies Act of 1978 ("PURPA") explicitly prohibits the development of declining block rates without meaningful cost support and justification. These provisions, admittedly, are included in the electric power title of the statute, but still appear to adequately reflect a conservation policy that would discourage unnecessary energy use from rate designs.

Q. DOES THE EPA'S NATIONAL ACTION PLAN FOR ENERGY EFFICIENCY SAY ANYTHING ABOUT DECLINING BLOCK RATES?

A. Yes, ironically, the same National Action Plan upon which the Company used to support its proposal for the CET, notes the negative impact that declining block rate structures have on energy efficiency. The Plan notes:

[9]National Association of Regulatory Utility Commissioners. *Gas Rate Design*. August 6, 1981: 59.

> Rate forms like declining block rates and customer charges promote revenue stability for the utility, but they create a barrier to customer adoption of energy efficiency because they reduce the savings that customers can realize from reducing usage.[10]

VI. RECOMMENDATIONS

Q. CAN YOU SUMMARIZE YOUR POSITIONS REGARDING THE PARTIES' CRITICISM OF YOUR COST OF SERVICE RECOMMENDATION?

A. Yes. I continue to support my original cost of service ("COS") recommendations, particularly those associated with small diameter ("S.D.") mains and large diameter ("L.D.") mains:

My S.D. mains recommendation is reasonable since it:

- Is consistent with the purpose of these assets to move gas to customers.
- Is consistent with many of the Company's line extension policies that incorporate throughput considerations.
- Balances the potential biases and estimation errors that may arise in the Company's original allocation factor estimation process. In addition to the functional reasons given earlier, blending in a small and reasonable throughput factor helps to:
    i. Mitigate for potential estimation errors;
    ii. Mitigate for the high degree of cost variability in the Company's estimates; and

[10]National Action Plan for Energy Efficiency Report, U.S. Environmental Protection Agency. July 2006.

iii. Mitigate for potential bias issues in the Company's estimates.

My L.D. mains recommendation is reasonable since:

- It is consistent with Commission policy.
- Consistent with the Company's last rate case.
- The Company has given no meaningful reason for changing its factors from prior rate cases.

Q. CAN YOU SUMMARIZE YOUR POSITION REGARDING THE PARTIES' CRITICISMS OF YOUR REVENUE SPREAD AND RATE DESIGN RECOMMENDATIONS?

A. Yes, I continue to support my original revenue spread and rate design recommendations, and in response to the opposing parties' positions (UAE), note that:

While the rate increases in my proposal are large, they should be balanced against other considerations that include:

- The long elapsed time since the Commission has had to rule, and effectively "calibrate" rates to the cost of service.
- The fact that residential customers will see rate increases both as a result of this proceeding, and after this proceeding is complete through the Conservation Enabling Tariff ("CET").

My rate design proposals are reasonable and consistent with economic theory, past Commission policy, and industry practice.

- Fixed charges need not reflect all fixed costs to be optimal. This

is especially true in the presence of a CET.

- Costs are important for rate design, but are not the only consideration in determining allocations between fixed and variable charges, seasonal differentials, and usage block rates.
- Demand characteristics are more important than costs, in determining appropriate block rate structures and even costs were overly important, the distribution-level pricing/usage inefficiencies would not outweigh the energy efficiency benefits.

Q. DO YOU HAVE ANY ALTERNATIVE RECOMMENDATIONS GIVEN THE POSITIONS RAISED IN THE PARTIES' REBUTTAL TESTIMONY?

A. Yes. As an alternative position with respect to splitting the GS-1 class, I recommend that if the Commission agrees to study, and develop a usage-based set of rate classes, it preserve the Company's existing rate design as an interim measure with modifications to be offered in the next rate proceeding. It would simply be administratively cumbersome and confusing to ratepayers to change rate structures twice, and could lead to unanticipated consequences, particularly in understanding a variety of issues regarding the performance of the CET during the pilot period.

Q. DOES THIS COMPLETE YOUR SURREBUTTAL TESTIMONY PREFILED ON OCTOBER 7, 2008?

A. Yes, it does.