BEFORE THE

STATE CORPORATION COMMISSION

OF THE STATE OF KANSAS

DOCKET NO. **07-AQLG-431-RTS**

DIRECT TESTIMONY OF

THOMAS J. SULLIVAN

REGARDING WEATHER NORMALIZATION, CLASS COST OF SERVICE, AND RATE DESIGN

ON BEHALF OF

AQUILA, INC.

OCTOBER, 2006

Q. Please state your name and business address.

A. Thomas J. Sullivan, 11401 Lamar, Overland Park, Kansas 66211.

Q. What is your occupation?

A. I am a Vice President of Black & Veatch Corporation. I am currently assigned to the Company's Enterprise Management Solutions Division where I serve as the Leader of the Financial Advisory Services group.

Q. How long have you been associated with Black & Veatch?

A. I have been employed with the firm since 1980.

Q. What is your educational background?

A. I earned a Bachelor of Science Degree in Civil Engineering from the University of Missouri - Rolla in 1980, summa cum laude, and a Master of Business Administration degree from the University of Missouri - Kansas City in 1985.

Q. Are you a registered professional engineer?

A. Yes, I am a registered Professional Engineer in the State of Missouri.

Q. To what professional organizations do you belong?

A. I am a member of the American Society of Civil Engineers.

Q. What is your professional experience?

A. I have been responsible for the preparation and presentation of numerous studies for gas, electric, water, and wastewater utilities. Clients served include investor owned utilities, publicly owned utilities, and their customers. Studies involve valuation and depreciation, cost of service, cost allocation, rate design, cost of capital, supply

analysis, load forecasting, economic and financial feasibility, cost recovery mechanisms, and other engineering and economic matters.

Prior to joining the Enterprise Management Solutions Division in 1982, I worked as a staff engineer in the Company's Power and Civil-Environmental Divisions.

Q. Have you previously appeared as an expert witness?

A. Yes, I have. In Exhibit__ (TJS-1), I list cases where I have filed expert witness testimony as an expert witness.

Q. For whom are you testifying in this proceeding?

A. I am testifying on behalf of Aquila, Inc. ("Aquila" or "Company").

Q. What is the nature of your work in this engagement?

A. The Company asked me to:

1. Prepare an irrigation adjustment to reflect normal usage.
2. Prepare a heating adjustment to reflect normal weather conditions.
3. Prepare a class cost of service study.
4. Design rates proposed by the Company which will produce revenues equal to the Company's proposed test year revenue requirement.
5. Develop alternative rate designs and compare those rates to the rates I propose. Specifically, I develop alternative rates using the methodology traditionally used by the Company and rates based on the Residential and Small Commercial customers paying a flat charge per month.

After this initial introductory section, my direct testimony is divided into sections that parallel these issues.

Q. Do you sponsor any exhibits?

A. Yes, in addition to Exhibit__ (TJS-1) previously discussed, I sponsor the following exhibits:

Exhibit___ (TJS-2) – Frequency Distribution of Residential MDQs

Exhibit___ (TJS-3) – Frequency Distribution of Small Commercial MDQs

Exhibit___ (TJS-4) – Comparison of Residential Annual Bills Under Existing, Proposed, Traditional, and a Flat Charge Rate Design

Exhibit___ (TJS-5) – Comparison of Small Commercial Annual Bills Under Existing, Proposed, and Traditional Rate Design

I also sponsor Section 17 of the Company's filing. Section 17 summarizes revenues under current and Company proposed rates and the following tariff sheets (found in Section 18 of the Company's filing):

Residential Service – Index Number 15

Small Commercial Service – Index Number 18

Small Volume Firm Service – Index Number 20

Large Volume Firm Service – Index Number 21

Small Volume Interruptible Service – Index Number 22

Large Volume Interruptible Service – Index Number 23

Wholesale Gas Service – Index Number 25

Small Commercial Transportation Service – Aggregated – Index Number 31

Small Volume Transportation Service - Aggregated – Index Number 32

Large Volume Transportation Service- Aggregated – Index Number 33

Large Volume Transportation Service – Index Number 34

Optional Large Volume Transportation Service – Aggregated – Index Number 36

IRRIGATION ADJUSTMENT

Q. Have you prepared an irrigation adjustment?

A. No, I have not. I directed Ms. Kimberly Winslow of Black & Veatch to prepare and sponsor the irrigation adjustment. Ms. Winslow is sponsoring the irrigation adjustment, which she prepared following my general direction.

Q. What instructions did you give to Ms. Winslow with regard to the preparation of the irrigation adjustment?

A. I instructed Ms. Winslow to prepare and sponsor two exhibits [Exhibit___ (KHW-1) and Exhibit___ (KHW-2)] comparable to Exhibit___ (TJS-3) and Exhibit___ (TJS-4) which I sponsored in Aquila's last rate case in Docket No. 05-AQLG-367-RTS. In this regard, I directed Ms. Winslow to make the following modifications to the analyses regarding the irrigation normalization adjustment I presented in Docket No. 05-AQLG-367-RTS:

1. Discontinue the statistical approach that I have proposed in the Company's prior Kansas rate cases.
2. Rely on the precedent established in the prior case and calculate the irrigation adjustment by normalizing the Company's irrigation sales based on a five-year use per customer average.

Q. What precedent do you refer to?

A. In my rebuttal testimony in the Company's last rate case, I used a five-year average to test the reasonableness of the results of my statistical analysis. I did so due to my lack of confidence in using spot rainfall data from half a dozen rain gauges that may

report significantly different rainfall amounts than actually experienced on irrigated land. The difference can be explained in part by localized thunderstorm activity common to the Midwest. In prior rate cases, the Company and Staff have devoted significant effort in attempting to statistically model usage based on imperfect and inadequate rainfall data and/or subjective crop information. In the Company's last rate case, Docket No. 05-AQLG-367-RTS, both Staff witness Mr. James M. Sanderson and I used a five-year average to test the reasonableness of the models that we developed in connection with that proceeding.

Q. Why is using a five year average use per customer preferable to the statistical approach?

A. The use of a five year average not only averages out the broader (rather than based on spot locations) impact of weather (wetter/drier or hotter/cooler temperatures) on irrigation usage over the recent past, it also reflects other considerations impacting watering requirements such as crop rotation and fuel switching that are more difficult to model. Based on the analyses performed by Mr. Sanderson and me in the Company's last case, the five year average is a reasonable estimate of what we expect for the test year. Further, the use of a five year average results in more consistent results over time because it looks at the overall trend and pattern in usage based on all the factors influencing usage rather than focusing solely on weather impacts and imperfect weather data.

Q. Does this conclude your prepared direct testimony regarding the irrigation adjustment?

A. Yes, it does.

HEATING WEATHER NORMALIZATION ADJUSTMENT

Q. In your opinion, were actual heating season weather conditions in the Company's service territory for the 12-month period ended June 30, 2006, normal?

A. No, generally they were not. Based on a comparison of actual heating degree-days (HDDs) to normal HDDs for the thirty-year period 1971-2000 (as reported by NOAA), conditions were warmer than normal. The following table summarizes conditions at the seven weather stations that I utilize in this case.

Weather Station	Actual Heating Degree Days	NOAA 30 Year Normal Heating Degree Days	Percent Warmer than Normal
Dodge City	4,085	5,037	18.90%
Garden City	4,616	5,423	14.88%
Goodland	5,094	6,023	15.42%
Hutchinson	4,383	5,146	14.83%
Liberal	3,980	4,770	16.56%
Topeka	4,431	5,225	15.20%
Wichita	3,906	4,765	18.03%

These deviations are significant enough that I concluded a heating adjustment to reflect normal weather conditions is warranted.

Q. Are these the same weather stations that you have relied upon in the Company's prior rate cases?

A. Yes, with the exception of Topeka. As part of the Stipulation and Agreement in Aquila's last rate case in Docket No. 05-AQLG-367-RTS, the parties agreed to use Topeka rather than Ottawa, which is what I had relied upon historically.

Q. Please describe the rationale for adjusting volumes to reflect normal weather conditions.

A. Because proposed rates are based on test year volumes, test year volumes should be adjusted to reflect sales expected in a "normal" (typical) year. Assuming all other factors equal, if rates are based upon volume levels that are inflated due to colder than normal weather (for example), the rates will be set too low and will only recover costs during similar periods of colder than normal conditions. Similarly, if weather is warmer than normal, rates will be set too high and will over recover costs. Thus, if test year weather conditions deviate from normal, it is necessary to adjust heating load to recognize what volumes would have been if conditions were normal.

Q. Have you prepared the heating adjustment to which you refer?

A. No, I have not. I directed Ms. Winslow to prepare and sponsor the heating adjustment. Ms. Winslow is sponsoring the heating adjustment, which she prepared following my general direction.

Q. What instructions did you give to Ms. Winslow with regard to the preparation of the heating adjustment?

A. I instructed Ms. Winslow to prepare and sponsor two exhibits [Exhibit___ (KHW-3) and Exhibit___ (KHW-4)] comparable to Exhibit___ (TJS-5) and Exhibit___(TJS-6) which I sponsored in the Company's last rate case in Docket No. 05-AQLG-367-RTS.

Q. Did you instruct Ms. Winslow to make any modifications to the methodology used in the prior case?

A. No, I did not. I instructed Ms. Winslow to use the same methodology in this case that I have used in prior Aquila rate cases. However, as I indicated earlier, I instructed Ms. Winslow to use the Topeka weather station instead of the Ottawa weather station based on the Stipulation and Agreement in the Company's last rate case.

Q. Does this conclude your prepared direct testimony regarding the heating weather normalization adjustment?

A. Yes, it does.

CLASS COST OF SERVICE

Q. Have you prepared the class cost of service study which you refer?

A. No, I have not. I directed Ms. Winslow to prepare and sponsor the class cost of service study, which she prepared following my general direction.

Q. What instructions did you give to Ms. Winslow with regard to the preparation of the class cost of service study?

A. I instructed Ms. Winslow to prepare and sponsor two exhibits [Exhibit___ (KHW-5) and Exhibit___ (KHW-6)] comparable to Exhibit___ (TJS-7) and Exhibit___ (TJS-8) which I sponsored in Aquila's last rate case Docket No. 05-AQLG-367-RTS. In this regard, I directed Ms. Winslow to make the following modifications to the study I presented in Docket No. 05-AQLG-367-RTS:

1. Modify the classification of investment in transmission and distribution mains based on a detailed study of the Company's investment and the relative capacity of these facilities.
2. Change the customer weighting factors to reflect a detailed analysis specific to Aquila's Kansas jurisdiction which recognizes the relative cost relationship to serve the various customer classes.
3. Update the load factors for the Residential and Small Commercial classes to reflect calculated load factors developed from her weather normalization analyses.
4. Credit revenues from customers served under the Company's Irrigation service rate schedules to cost of service.

Q. What is the nature of the changes you instructed Ms. Winslow to make to the classification of the Company's investment in transmission and distribution mains?

A. Based on a detailed study of the Company's investment and the relative capacity of these facilities, which was performed under my supervision and direction, I instructed Ms. Winslow to modify the classification of investment in transmission and distribution mains in the functional cost of service study. With regard to gathering, transmission, and a portion of distribution plant, I instructed Ms. Winslow to allocate 18.75 percent to the transmission function and 81.25 percent to the distribution function. Two-thirds of transmission related costs are then classified as demand and one-third as commodity. The 81.25 percent allocated to distribution is comprised of a demand component (41.76 percent) and a customer component (39.39 percent).

Q. What is the nature of the changes you instructed Ms. Winslow to make to the customer weighting factors in the class cost of service study?

A. Customer weighting factors are used to develop allocation basis for costs associated with non-joint facilities[1]. These facilities include services, meters and regulators, and customer accounts. A detailed analysis, which was performed under my supervision and direction, was developed that recognizes the relative difference in the average unit cost of these facilities to serve the various customer classes in Aquila's Kansas

1 In this context, the distinction between joint and non-joint facilities is that joint facilities are located in public rights-of-way and can be attributed to serving multiple customers. Non-joint facilities are facilities that tend to be located on the customer's property and can be attributed to serving one or in some instances a few customers.

jurisdiction. Based on this analysis, I am recommending some slight modifications to the customer weighting factors that I used in Docket No. 05-AQLG-367-RTS.

As indicated by my analysis, I instructed Ms. Winslow to use weighting factors of 1.00, 1.25, 2.60, and 5.70 for the Residential, Small Commercial, Small Volume, and Large Volume customer classes, respectively, for the distribution customer and services functions. For the meters and regulators function, I instructed her to use weighting factors of 1, 5, 15, and 50 for the Residential, Small Commercial, Small Volume, and Large Volume customer classes, respectively. I instructed Ms. Winslow to use the same weighting factors used for the customer accounts function as I used in the prior rate case.

Q. Why did you instruct Ms. Winslow to credit revenues from Irrigation customers (sales and transportation) to cost of service rather than treat the Irrigation customers as a separate customer class as you have done historically?

A. I did so for essentially the same reasons as I instructed her to credit revenues from discounted transportation customers and Wholesale service as I have in past rate cases. By crediting the margins realized from these customers back to the other classes, I recognize that this increased throughput (and associated margin) lowers the unit cost of the Company's system. By crediting these revenues, I am returning 100 percent of the benefit for serving these customers to customers not served in competitive markets.

While Aquila's Irrigation customers are not served in the same "competitive market" as discounted customers, they do operate in a highly competitive market.

The discounted customers are typically bypass threats and/or potentially alternative fuel users. The rates they are charged reflect the maximum margin that the Company can realize from these customers and still retain them on the system for the benefit of other customers. Irrigation customers are served in a competitive market because they can fairly easily switch fuels, purchase equipment fueled by alternate fuels, or switch crops or growing techniques in response to changes in fuel costs. When Irrigation customers choose to switch fuel from natural gas, generally this represents a permanent load lost and the other firm customers on the system lose the benefit of the margin contribution from the Irrigation customers towards recovery of fixed costs. In this respect, Irrigation customers operate in a competitive market similar to customers that have traditionally been credited to cost of service.

Q. Has Aquila lost irrigation load since the last rate case?

A. Yes, it has. Since the last rate case in 2004, Aquila has lost 112 Irrigation customers, or 6 percent of the customer base. The Company has informed me that this loss is primarily due to fuel switching and/or crop shifting.

Q. Please summarize your recommendations and instructions to Ms. Winslow with regards to irrigation customers?

A. Given this recent decline in customers and revenue, and based on input that I have received from the Company about the likelihood of agricultural customers continuing to exercise their ability to fuel switch if prices rise, I consider Aquila's Irrigation customers and related revenues to continue to be highly at risk of further erosion if the Company were to propose a rate increase for this class. Therefore, I instructed

Ms. Winslow to credit revenues attributable to Irrigation service to the cost of service in order to preserve the full benefits of the existing Irrigation class revenue stream for core market customers.

Q. Does this conclude your prepared direct testimony regarding the class cost of service?

A. Yes, it does.

RATE DESIGN

Q. Have you designed the Company's proposed rates?

A. No, I have not. I directed Ms. Winslow to prepare and sponsor the Company's proposed rates. Ms. Winslow is sponsoring the proposed rates which she prepared following my general direction.

Q. What instructions did you give to Ms. Winslow with regard to the design of the Company's proposed rates?

A. I instructed Ms. Winslow to prepare and sponsor two exhibits [Exhibit___ (KHW-7) and Exhibit___ (KHW-8)] comparable to Exhibit___ (TJS-9) and Exhibit___ (TJS-10) which I sponsored in Aquila's last rate case Docket No. 05-AQLG-367-RTS. In this regard, I instructed Ms. Winslow to use the following guidelines in the design of the proposed rates:

1. Customer charges should more directly reflect customer related costs.
2. The overall rate increase should be approximately $7.24 million.
3. The rate structure should be better aligned with the fixed nature of Aquila's network costs.
4. Consistent with the above goals, rates should be designed as near to cost of service as practical.

Q. Please summarize your specific instructions to Ms. Winslow that she relied upon to design rates.

A. I instructed Ms. Winslow to make the following changes to the Company's existing rate structure:

1. Increase the Residential customer charge from $12.00 to $13.00 per month.
2. Increase the Small Commercial customer charge from $17.00 to $20.00 per month.
3. Increase the Small Volume customer charge from $30.00 to $40.00 per month.
4. Increase the Large Volume customer charge from $225.00 to $250.00 per month.
5. Set the commodity charge for the Small Volume and Large Volume Interruptible classes to fully recover their respective costs of service not otherwise collected through the proposed customer charge.
6. Set the commodity charge for Residential, Small Commercial, Small and Large Volume (firm and transportation customers served at full margin) classes to fully recover their respective transmission commodity costs determined in the cost of service study.
7. Introduce a monthly demand charge for all Residential, Small Commercial, Small and Large Volume (firm and transportation customers served at full margin) customers to collect all of the Company's remaining fixed capacity costs not otherwise collected through the proposed customer charge.

Q. Did you instruct Ms. Winslow to make any changes to rates charged to Irrigation customers?

A. No. As I previously indicated, I believe revenues collected from these customers are at risk and therefore should be treated as a credit to cost of service.

Q. Did you instruct Ms. Winslow to make any changes to rates charged to

discounted Transportation and/or Wholesale customers?

A. Yes. I instructed Ms. Winslow to continue to tie the customer charges for discounted Transportation and Wholesale customers to the Large Volume customer charge. This results in an increase in the customer charge for the discounted Transportation and Wholesale customers from $225 to $250 per month.

Q. Why did you instruct Ms. Winslow to include a Demand Charge for the customer classes previously indicated?

A. A Demand Charge more properly aligns Aquila's predominantly fixed distribution network costs with a tariff mechanism designed to recover those costs. The rates proposed in this proceeding exclude the predominantly variable costs of service which are collected through a separate purchased gas cost mechanism that, at today's commodity prices, account for over 70 percent of total revenues. The remaining 30 percent of total revenues (the margin component of the rate) relate to mostly fixed costs. These fixed costs primarily include operation and maintenance expenses, depreciation expense, return, and taxes associated with mains, service lines, meters and regulators, and administrative activities which do not vary with the volume of gas sold. Aquila's current rates collect approximately 50 percent of these fixed costs through a variable commodity charge.

The principal consideration driving most of Aquila's investment and cost is in facilities that are designed and available to meet customers' peak day requirements. Aquila must design and construct facilities sized to meet peak demand regardless of whether the customer uses that volume of gas every day or from one year to the next.

Aquila's investments in capacity related costs should be recovered in a tariff mechanism that properly reflects the fixed nature of capacity related costs. Implementation of a Demand Charge based on peak usage is a more equitable and direct way to match rates and revenue recovery with the fixed nature of Aquila's network costs and how customers impose capacity costs on the gas network. It also satisfies several basic key rate design principals. These include that rates: 1) be based on the cost to serve customers, 2) achieve recovery of the Company's revenue requirement, 3) provide revenue and rate stability, 4) are practical to implement, and 5) are not unduly discriminatory.

Q. How did you instruct Ms. Winslow to calculate this Demand Charge?

A. I instructed Ms. Winslow to calculate the Demand Charge by applying a monthly Demand Charge rate to a customer's maximum daily quantity (MDQ). The Demand Charge rate, once established in this proceeding, will not be modified until Aquila files another rate request.

I instructed Ms. Winslow to calculate a customer's MDQ by dividing the volume delivered to the customer during the month of highest usage during the last 36 months by 20 and rounding to the nearest whole number. Initially, a customer's MDQ will be set using the 36 month historical billing data available at the time the rates take effect. Beginning in August 2007 and every August thereafter, a customer's MDQ will be recalculated based on the maximum monthly use during the most recent 36 month period.

The units on a customer's MDQ will be therms per day. The units on the Demand Charge rate are $ per therm per day per month. Once determined, a customer's Demand Charge will remain a fixed monthly charge until at least the next August, when the customers' MDQ will be recalculated.

Q. Is this a new concept in Kansas?

A. Yes, it is. However, the Company has employed the Demand Charge concept in its Iowa jurisdiction for several of its customer classes and therefore has an existing definition of MDQ in the Company's tariffs.

Q. Please describe how the month of highest usage will be calculated?

A. A customer's month of highest usage will be calculated by dividing the billed volume for each of the previous 36 months by the number of days in the respective billing cycles and then multiplying by 30. This will normalize each customer's actual monthly use to a standardized 30 day billing cycle. The resulting highest month's usage will then be used to calculate that customer's MDQ.

Q. Why do you divide the peak monthly usage by 20 to determine the MDQ?

A. The majority of customer meters in the Company's service territory do not normally capture peak day demand information. Typically, only usage between successive meter reads (monthly) is available. As an alternative to measuring each day's use, I divide monthly usage by 20, which results in an implied monthly load factor of about 66 percent. I consider this to be a reasonable proxy for the determination of monthly demand. The Missouri Public Service Commission has accepted this approach for

use in designing the large volume firm gas service tariff in Missouri, for the gas system formerly owned by Aquila, where demand metering does not exist.

Q. How does using 20 as the divisor in the MDQ calculation impact the Demand Charge levied to customers?

A. It has no impact. The number could be virtually any divisor and it would have no impact on any customer's bill. For example, if the divisor was 19 (instead of 20), the units would be higher by (20/19), but the rate would lower by the reciprocal amount (19/20), resulting in no net impact on the amount any customer is billed (20/19 times 19/20 = 1).

Q. How will the MDQ for customers with less than 36 months of bill history at the time the rates take effect by established?

A. Customers with less than 36 months of billing history will have their MDQ set based on the available billing history that they have accumulated at the time the rates take effect. However, the MDQ will never be set lower than the minimum MDQ.

Q. How will the MDQ for customers who enter service after the rates take effect be determined?

A. When a new customer begins service, they will be assigned the minimum MDQ. The minimum MDQ for Residential, Small Volume, and Large Volume will be 5, 15, and 150 therms per day, respectively. The minimum MDQ will be fixed until the next recalibration period (which is during the August billing cycle). Beginning with the customer's first recalibration period, the MDQ will be determined based upon the history of usage available at that time and fixed for the next succeeding 12 month

period. For customers, whose MDQ is less than the established minimum, their MDQ will be set at the minimum for their respective customer class.

Q. Why are you proposing a minimum MDQ?

A. There are two primary reasons. First, since I am proposing that customers' MDQs only be determined once a year, there needs to be some means to charge customers who come onto the system after that date. Second, there is a minimum amount of capacity built into the system to serve each customer. If one examines the heat factors summarized in Exhibit___(KHW-3) from Ms. Winslow's regression analyses as part of her weather normalization adjustment, a typical residential customer's heat sensitive demand equals approximately 0.13 therms per HDD and base non-heat sensitive use ranges from about 20 to 30 therms per month. In the Company's Kansas service territory, the peak day HDDs are approximately 70. Based on these figures, a typical residential customer would use about 10 therms on a peak day (0.13 times 70 plus 30 divided by 30).

I instructed the Company to calculate the maximum month's usage divided by 20 for every customer taking service during the test year. I then plotted these figures as a frequency distribution. For Residential customers, I found that 87 percent of the customers would have a maximum demand equal to or greater than 5 therms.

Based on these two factors, I determined that a minimum demand of 5 therms is reasonable for the Residential class. Exhibit___ (TJS-2) and Exhibit___ (TJS-3) show the frequency distribution of MDQs for Residential and Small Commercial customers, respectively. Exhibit ___ (TJS-3) shows similar results indicating that a

minimum demand of 5 therms is reasonable for the Small Commercial customers as well.

Q. How did you determine the minimum MDQ for Small and Large Volume customers?

A. By definition in the Company's tariff, a Small Volume customer must have an annual consumption of at least 5,000 therms. The resulting minimum average daily consumption for a Small Volume customer is therefore 13.70 therms (5,000 therms/365 days). A customer's MDQ, by definition is greater than or equal to their average consumption; I am therefore proposing that the minimum MDQ for Small Volume customers be set at 15 therms.

Similarly, a Large Volume customer must have an annual consumption of at least 50,000 therms. The resulting minimum average daily consumption for a Large Volume customer is 137 therms (50,000 therms/365 days). I therefore propose that the minimum MDQ for Large Volume customers be set at 150 therms.

Q. Do you recommend any provision to mitigate the impact of changes in the level of MDQ when it is recalculated each year?

A. Yes, I do. I propose that, except for new customers (those who have been added in the last year), the MDQ cannot change by more than the greater of 1 therm or 10 percent (up or down) from the previously established amount, irrespective of the billing history data available at the time of recalibration.

For new customers, during their first recalibration period, the MDQ will be based upon the history of usage data available at that time without a 1 therm or 10

percent change limit (from the minimum). Thereafter, any potential changes in MDQ that may occur during subsequent recalibration periods will be subject to the same 1 therm or 10 percent change limit as all other customers.

For example, if a new Residential customer connects to the system in September 2007, this customer will initially be assigned an MDQ of 5 therms. If, by the time of the Residential customer's first recalibration in August 2008, their highest month's usage occurred during December 2007 and was 242 therms, this customer's MDQ will be 12 therms (242 divided by 20) for August 2008 through July 2009. The 1 therm or 10 percent change limit will not apply to this customer during their first recalibration period. However, the 1 therm or 10 percent change limit will apply to this customer for subsequent recalibrations. For example, this Residential customer's MDQ in August 2009 will be no greater than 13 therms (10 percent more than 12 therms) and no less than 11 therms (10 percent less than 12 therms).

Q. Please summarize the criteria that you discuss above to calculate the MDQ.

A. My criteria are as follows:

1. MDQ will be calibrated annually in August.
2. MDQ will be based on the prior 36-months of billing history ending July.
3. If 36-months of billing history are not available, the most recent available billing history will be used to calculate the MDQ.
4. The monthly billed volumes for the previous 36-months will be normalized to a 30 day billing cycle to determine the maximum MDQ where:

   Maximum MDQ = ((Billed Volume/ Number of Days in Billing Cycle) X 30) / 20
5. The MDQ will be rounded to the nearest whole therm.

6. If the MDQ is less than the respective Minimum MDQ, then the MDQ will equal the Minimum MDQ where the Minimum MDQ for applicable classes is defined as:
    a. Residential = 5 therms
    b. Small Commercial = 5 therms
    c. Small Volume (Firm and Trans.) = 15 therms
    d. Large Volume (Firm and Trans.) = 150 therms
7. The MDQ will be compared to the previous MDQ
    a. If Current MDQ > (1.1 X Previous MDQ) then Current MDQ = 1.1 X Previous MDQ (rounded to the nearest whole therm).
    b. If Current MDQ < (.9 X Previous MDQ) then Current MDQ = .9 X Previous MDQ (rounded to the nearest whole therm).
    c. Otherwise, Current MDQ = the maximum of the Current and Previous MDQs.
8. For new customers (those added after the most recent recalibration) the MDQ will equal the Minimum MDQ until the next calibration.
9. Maximum 10 percent increase in MDQ does not apply to new customers in their first calibration.

Q. How did you instruct Ms. Winslow to determine the annual MDQ for each class?

A. The Company provided Ms. Winslow with MDQs for each active customer using the criteria I outlined above. An active customer is defined as any customer who is currently receiving a bill. Ms. Winslow then calculated the annual MDQ for each Residential, Small Commercial, Small Volume, and Large Volume customer by multiplying each active customer's MDQ by the number of bills they received during the test period. I then instructed her to sum each active customer's annual MDQ to determine the respective class MDQ. I present the results in the following table.

Customer Class	Annual MDQs
	therms
Residential	9,118,616
Small Commercial	1,803,670
Small Volume Firm	1,864,182
Small Volume Transportation	831,586
Large Volume Firm	254,457
Large Volume Transportation	2,839,075

Q. If the Commission were to accept the concept of the demand rate design, would you propose to recalculate the demand units before the rates went into effect?

A. Yes. The annual MDQs that I instructed Ms. Winslow to use in the design of the rates are based on 36 months ending June 2006, which corresponds to the test year. In order for the Company to fully recover the revenues associated with the demand charge and for customers to be charged a rate based on the most recently available data at the time the rates take effect, I propose that the Commission allow the Company to recalculate the annual MDQs and Demand Charge rate based on the most recent three years data available at the time the rates go into effect.

Q. How did you instruct Ms. Winslow to determine the Demand Charge rate?

A. I instructed Ms. Winslow to design the Demand Charge rate to fully collect the Company's fixed capacity costs that are not otherwise collected through my proposed customer charge for each customer class. I define the fixed capacity costs as all costs except the costs I have defined as transmission commodity related costs.

Q. How did you instruct Ms. Winslow to determine the Customer Charges for each customer class?

A. The customer charges that I propose move closer to the customer related costs indicated in Ms. Winslow's cost of service study. The table below summarizes the indicated customer related costs shown in Exhibit ___(KHW-6), Table 7, Line 7. These unit costs represent the maximum level of customer charges that can be justified on the basis of average class customer related cost as measured by Ms. Winslow's cost of service study.

Customer Class	Indicated Customer Charge
	$/month
Residential	$16.37
Small Commercial	$39.17
Small Volume Firm	$96.13
Small Volume Transportation	$96.13
Large Volume Firm	$348.42
Large Volume Transportation	$348.42

Q. How did you instruct Ms. Winslow to determine the Commodity Charges for the Residential, Small Commercial, Small and Large Volume (firm and transportation customers served at full margin)?

A. I instructed Ms. Winslow to divide the class' transmission commodity related costs determined in the cost of service study by that class' annual test year throughput.

Q. What is the basis for Ms. Winslow's recommended decrease in the Commodity Charges for the Interruptible customer classes?

A. I instructed Ms. Winslow to set the commodity charge for these customers at the level required to collect the remainder of these classes' indicated cost of service that is not otherwise collected through the proposed Customer Charge. I did not instruct Ms. Winslow to propose a Demand Charge for Interruptible customers.

Q. Does this conclude your prepared direct testimony regarding the proposed rate design?

A. Yes, it does.

TRADITIONAL RATE DESIGN

Q. Please define what you mean by traditional rate design.

A. In my testimony, traditional rate design refers to the Company's existing rate structure that consists of a fixed monthly customer charge and a flat commodity (volumetric) charge that are applied to all customers within a given rate schedule.

Q. Why did you instruct Ms. Winslow to develop rates under a traditional rate design?

A. Traditional rate design is presented for comparison purposes only in order to more readily demonstrate the benefits of the demand rate design I recommend. Traditional rates are designed to collect the total cost of service indicated by Ms. Winslow's study entirely through the traditional customer and commodity charge rate components. In the rate design historically used by Aquila in Kansas, all fixed capacity costs not recovered through the customer charge are recovered through the commodity charge.

Q. What instructions did you give to Ms. Winslow with regard to designing rates under the traditional approach?

A. The guidelines I provided to Ms. Winslow are as follows:

1. Retain the existing commodity charge for all classes.
2. Increase the Small Commercial customer charge from $17.00 to $25.00 per month.

3. Set the Residential customer charge at the level that is required to collect the remainder of the Residential and Small Commercial indicated cost of service.

4. Set the Small Volume and Large Volume customer charges at a level to fully recover their respective costs of service not otherwise collected through the commodity charges.

Q. Does this "traditional" rate design deviate from how you have historically recommended that Aquila's Kansas rates be designed?

A. Yes, it does. It includes customer charges that are higher than I have historically recommended especially for the Residential class. In prior cases, I have recommended that the customer charge be used to collect most, but not all, customer related costs. I continue that recommendation under the rates I propose that include a demand charge.

However, if the traditional rate design is used and the fixed nature of Aquila's cost of service is recognized in the design of rates, the only fixed component of the traditional rate structure is the customer charge and therefore (under the traditional rate structure) the customer charge must collect more than simply customer related costs. It must also collect other fixed costs.

Q. Do you recommend that the Commission continue to use the traditional rate design?

A. No, I do not. In the last section of my testimony, I compare the traditional rate design to the rate design I am recommending highlighting the benefits of the rate design I propose.

Q. Does this conclude your prepared direct testimony regarding the traditional rate design?

A. Yes, it does.

FLAT CHARGE RATE DESIGN

Q. Is there an alternative rate design to the proposed demand charge rate design that would also enable the Company to better align its rates with the fixed nature of its costs?

A. Yes, the Company could propose a fixed monthly charge where 100 percent of its margin is recovered through a flat charge.

Q. Did you calculate rates based on a flat charge?

A. Yes, I determined the flat charge that would collect the same level of revenues by class as the demand charge rate design I am proposing for the Residential and Commercial customer classes. I calculate the flat charge by taking the Residential and Small Commercial cost of service requirement as determined in Ms. Winslow's cost of service study and dividing by the number of annual bills. The flat charge that results is a $27.62 per bill per month charge for Residential and Small Commercial customers. The table below presents the calculation:

	Cost of Service	Number of Customers
Residential	$28,454,664	94,010
Small Commercial	$5,425,095	8,225
Total	$33,879,758	102,335
Flat Charge		$27.62/bill/month

Q. Did you determine a flat charge for any of the other rates?

A. No, I did not. I believe that the wide range in customer sizes (annual throughput and capacity requirements) for customers served under the small and large service rates make it unreasonable to charge all customers a uniform flat charge.

Q. Does this conclude your prepared direct testimony regarding the flat charge rate design?

A. Yes, it does.

COMPARISON OF PROPOSED RATE DESIGN TO TRADITIONAL RATE DESIGN AND A FLAT CHARGE RATE DESIGN

Q. Have you prepared comparisons of the bill impacts of the proposed rate design that incorporates a demand charge and the traditional and flat charge rate designs on customer bills?

A. Yes. Exhibit___(TJS-4) shows the comparison of annual bills for Residential customers at varying levels of MDQs using the Company's existing rates, proposed rates, rates calculated using the traditional rate design approach, and rates calculated based on a flat charge and incorporating the Company's requested revenue deficiency. The traditional rates were calculated by Ms. Winslow given my specific instructions and are shown in Exhibit___(KHW-7). Exhibit___(TJS-5) shows a similar comparison of annual bills for Small Commercial customers.

Q. With regard to typical bills, how does the traditional approach compare to the proposed rates?

A. As shown in Exhibits ___ (TJS-4) and (TJS-5), smaller customers would pay more under the traditional rate design. For example, as shown in Exhibit___(TJS-4), the breakeven MDQ is about 9 therms. The breakeven point represents the MDQ level where customers would receive the same bill impact whether the recommended demand rate design or tradition rates were implemented. The typical customer with an MDQ below 9 therms would pay more under traditional rate design. Approximately 70 percent of the Company's residential customers are at or below

this breakeven point and therefore more than two-thirds of the Company's Residential customers will pay more under the traditional rate design.

With regard to Exhibit ___ (TJS-5), approximately 45 percent of the Company's Commercial customers are at or below the breakeven point of 11 therms. In other words, almost half of the Company's Small Commercial customers will pay more under the traditional rate design.

Q. Are there any other advantages to the customer if the proposed demand charge rates are adopted?

A. Yes, there are. My proposed rate design:

1. Provides a more equitable apportionment of fixed capacity cost recovery among customers within each rate class because the demand charge approach does not establish fixed points where a customer's bill would change. As customers' load increases, the demand charge reflects that higher demand usage. Small and large customers pay their share of capacity related costs without intraclass subsidization (smaller residential customers subsidizing larger residential customers, for example).
2. Establishes a more direct link between capacity costs and revenues.
3. Satisfies the important rate design principle that cost is a primary consideration.
4. Reduces the seasonality of the non-gas portion of the customer bills.
5. Reduces the fluctuations in the non-gas portion of the customer bills due to abnormal weather.

6. Reduces the utility's disincentive to promote energy efficiency because margin recovery is decoupled from consumption.

Q. What are the advantages of a flat charge rate design?

A. The flat charge is the simplest form of rate design. It eliminates any disincentive for the Company to encourage conservation and energy efficiency plans. Under a flat charge, the Company is indifferent to conservation. In addition, there is no seasonality in the non-gas portion of a customer's bill which better aligns the monthly recovery of cost through rates with the Company's monthly incurrence of costs. From the perspective of the customer, the rate design is easy to understand and it reduces the effects of weather on customer bills. In turn, it reduces the effect of weather on utility revenues and would totally eliminate the need for the Company to administer a weather normalization adjustment (WNA) rider.

Q. What are the disadvantages of a flat charge rate design?

A. The flat charge rate design does not fully recognize cost. It treats all customers within a customer class the same, regardless of their size or demand on the system. As I mentioned earlier in my testimony, the demand charge rate design that I am proposing overcomes this disadvantage. I easily demonstrate this in Exhibit___(TJS-4). Under the flat charge rate design, nearly 80 percent of the Residential customers will pay more under this rate design than my proposed demand charge rate design. The larger residential customers benefit from the flat charge rate design, whereas my proposed demand charge rate design allows for customers to pay for how they use the system.

Q. What are the advantages of either your proposed demand charge rate design or the flat charge relative to the traditional rate design?

A. Both my proposed demand charge rate design and the flat charge better align the fixed nature of Aquila's costs with rates. The traditional rate design relies heavily on the recovery of fixed costs through variable commodity components that are impacted by not just weather but also other factors, primarily conservation, that have caused customers' usage to decline over the last twenty years. As compared to my proposed demand charge rate design, the customer charges in the traditional rate design are higher resulting from including the other fixed costs in the customer charge which fail to recognize how each customer uses the system. Smaller customers pay the same customer charge as larger customers within their own rate class regardless of usage or capacity requirements.

Q. Please summarize which rate design you recommend for Aquila?

A. I believe that the best rate design is the rate design that incorporates a demand charge for all firm service rates. This rate design is contained in Ms. Winslow's Exhibit___(KWH-7) and is also the rate design used to develop Schedule 17 of the Company's filing.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

VERIFICATION

STATE OF KANSAS)

)ss:

COUNTY OF JOHNSON)

Thomas J. Sullivan, being first duly sworn, deposes and says that he is Thomas J. Sullivan referred to in the foregoing document entitled "Direct Testimony of Thomas J. Sullivan" before the State Corporation Commission of the State of Kansas and the statements therein were prepared by him or under his direction and are true and correct to the best of his information, knowledge and belief.

Thomas J. Sullivan

SUBSCRIBED AND SWORN to before me this 25 day of October, 2006.

Notary Public

My Appointment Expires: 2-6-08

NOTARY PUBLIC STATE OF KANSAS | SHELLY HOFFMAN My Appt. Exp. 2-6-08

SHELLY HOFFMAN NOTARY PUBLIC STATE OF KANSAS

Expert Witness Testimony of Thomas J. Sullivan

- *Peoples Natural Gas Company of South Carolina, South Carolina Public Service Commission Docket No. 88-52-G (1988).* Natural gas utility revenue requirements and rate design.
- *Peoples Natural Gas (UtiliCorp United, Inc.), Iowa Utilities Board Docket No. RPU-92-6 (1992).* Natural gas utility class cost of service study and peak day demand requirements.
- *Peoples Natural Gas (UtiliCorp United, Inc.), Kansas Corporation Commission Docket No. 193,787-U (1996).* Natural gas utility class cost of service study, rate design, and peak day demand requirements.
- *Southern Union Gas Company, Railroad Commission of Texas Gas Utilities Docket No. 8878 (1998).* Natural gas utility depreciation rates.
- *Southern Union Gas Company, City of El Paso (1999).* Natural Gas utility depreciation rates.
- *UtiliCorp United, Inc., Kansas Corporation Commission Docket No. 00-UTCG-336-RTS (1999).* Natural gas utility weather normalization, class cost of service, and rate design.
- *Philadelphia Gas Works, Pennsylvania Public Utility Commission Docket No. R-00006042 (2001).* Natural gas utility revenue requirements.
- *Missouri Gas Energy, Missouri Public Service Commission Docket No. GR-2001-292 (2001).* Natural gas utility depreciation rates.
- *Aquila Networks, Iowa Utilities Board Docket No. RPU-02-5 (2002).* Natural gas utility class cost of service study, rate design, and weather normalization adjustment.
- *Aquila Networks, Michigan Gas Utilities, Michigan Public Service Commission Case No. U-13470 (2002).* Natural gas utility class cost of service study, rate design, and weather normalization adjustment.
- *Aquila Networks, Nebraska Public Service Commission Docket No. NG-0001, NG0002, NG0003 (2003).* Natural gas utility weather normalization adjustment.
- *Aquila Networks, Missouri Public Service Commission Docket No. GR-2003 (2003).* Natural gas utility class cost of service study, rate design, annualization adjustment, and weather normalization adjustment.
- *North Carolina Natural Gas, North Carolina Utilities Commission Docket No. G-21-Sub 442 (2003).* Filed intervenor testimony on behalf of the municipal customers regarding natural gas cost of service and rates related to intrastate transmission service.
- *Texas Gas Service Company, Division of ONEOK, Railroad Commission of Texas Gas Utilities Docket No. 9465 (2004).* Natural gas utility depreciation rates.
- *Missouri Gas Energy, Missouri Public Service Commission Docket No. GR-2004-0209 (2004).* Natural gas utility depreciation rates.
- *Aquila Networks, Kansas Corporation Commission Docket No. 05-AQLG-367-RTS (2004).* Natural gas utility class cost of service study, rate design, and weather normalization adjustment.

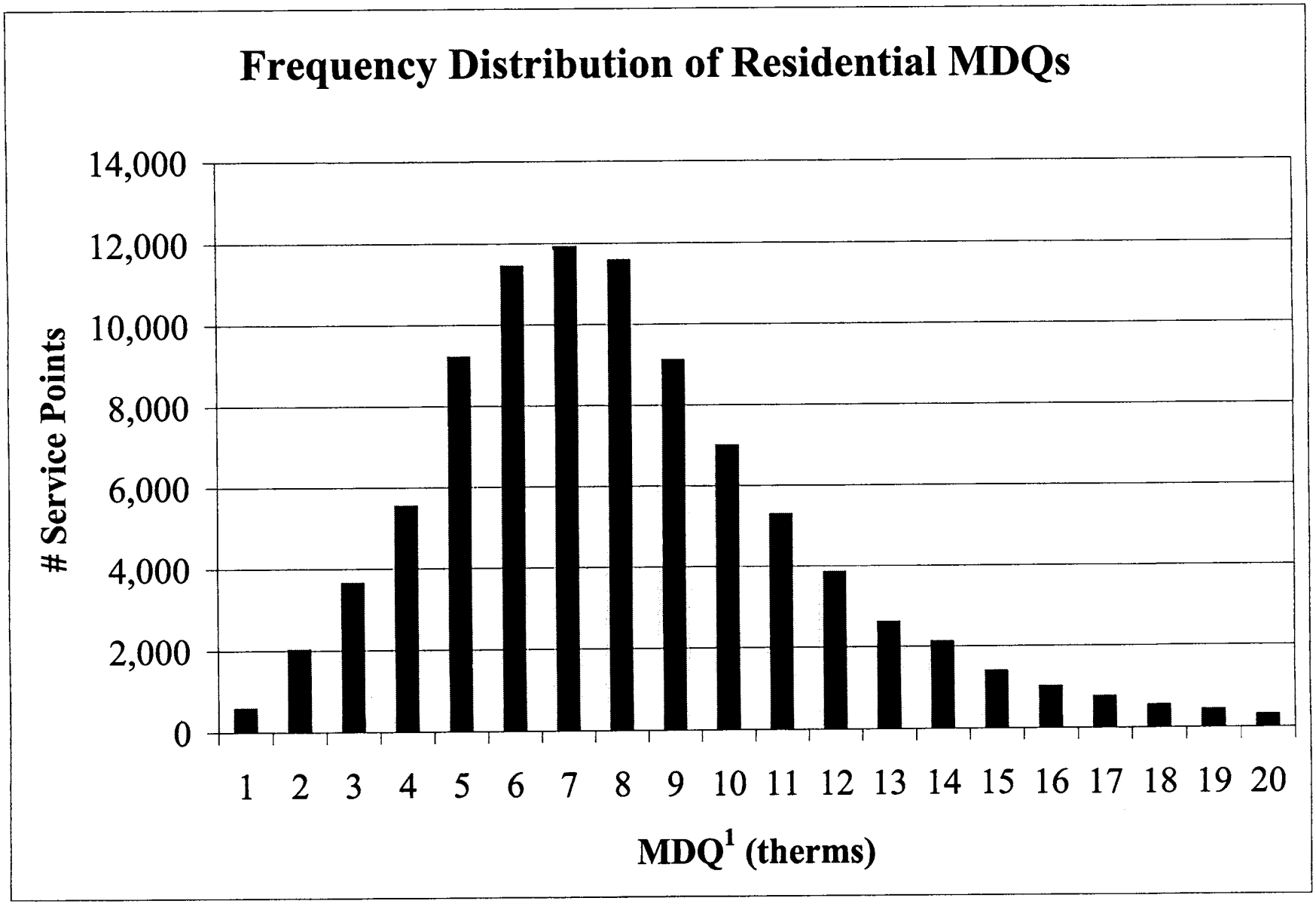
- *Aquila Networks, Iowa Utilities Board Docket No. RPU-05-02 (2005).* Natural gas utility class cost of service study, rate design, grain drying adjustment and weather normalization adjustment.

- *PJM Interconnection, LLC, Federal Energy Regulatory Commission Docket No. ER05-1181 (2005).* Operating cash reserve requirements.

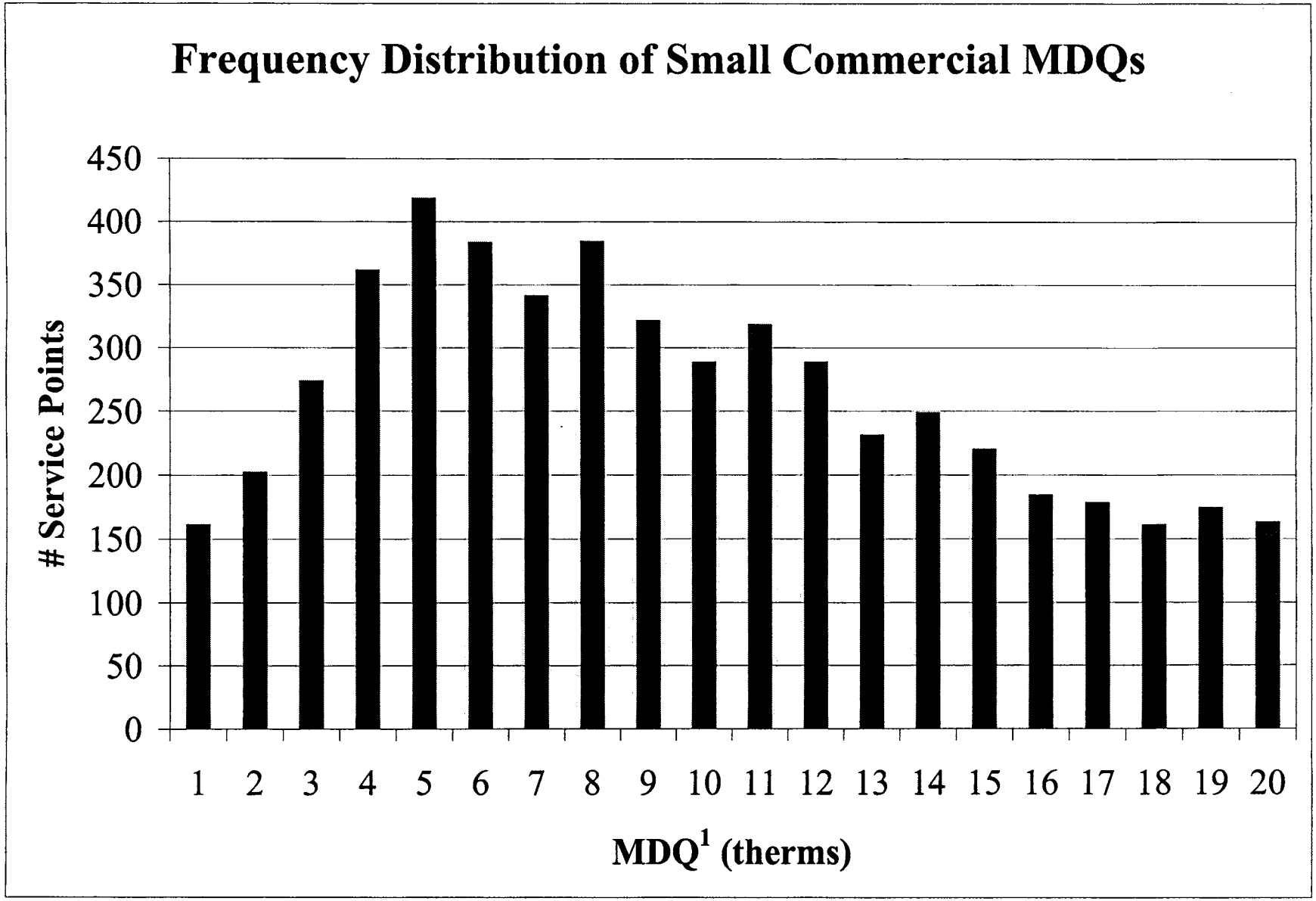
- *Kinder Morgan, Inc., Wyoming Public Service Commission Docket No. 30022-GR-6-73 (2006).* Natural gas utility weather normalization adjustment, development of load factors, billing cycle adjustment, determination of test year billing units and revenue, and depreciation rates.

- *Missouri Gas Energy, Missouri Public Service Commission Docket No. GR-2006-0422 (2006).* Natural gas utility depreciation rates.

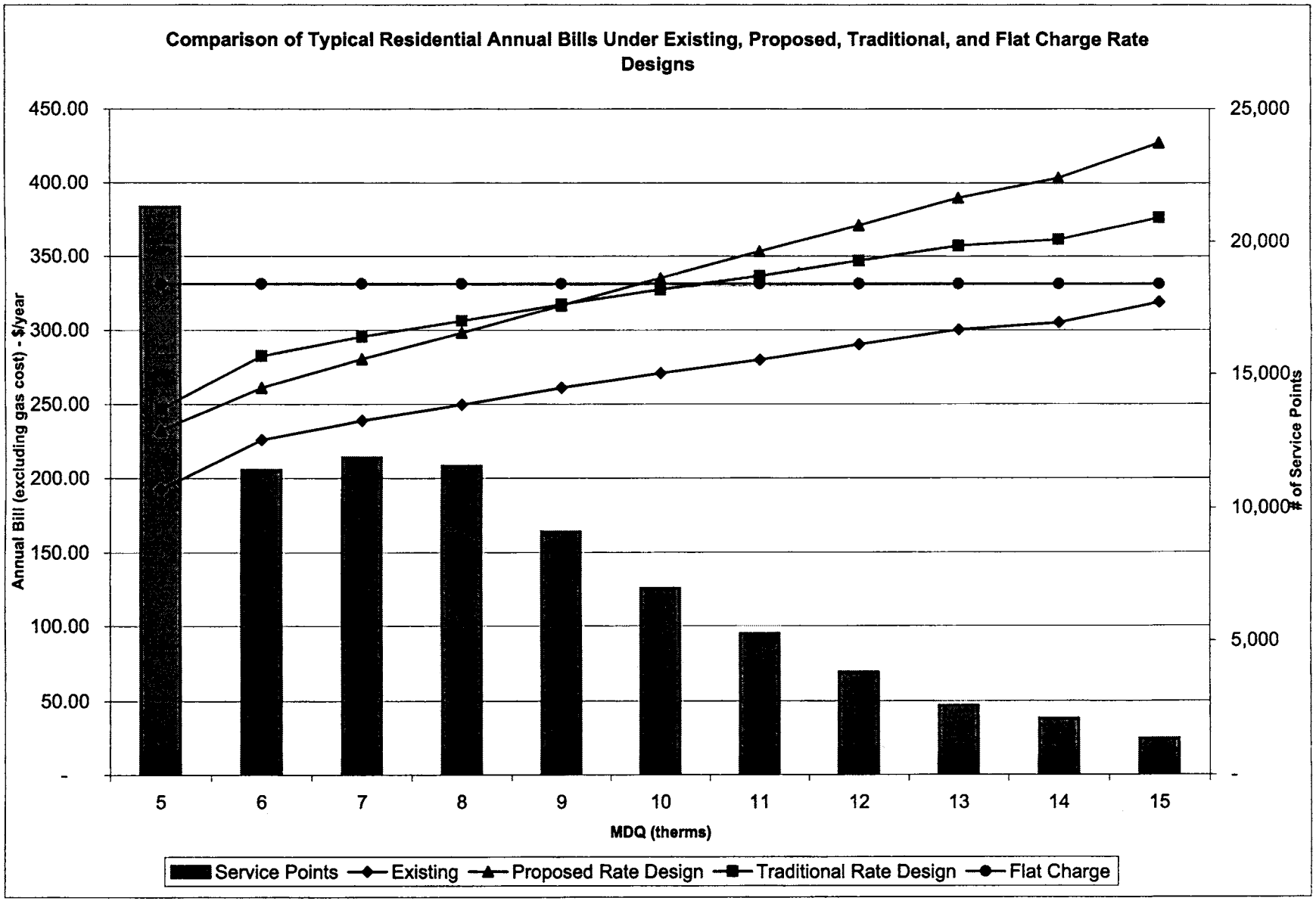
- *Kinder Morgan, Inc., Nebraska Public Service Commission Docket No. NG-0036 (2006).* Natural gas utility weather normalization adjustment, test year billing determinates and revenue under existing rates and customer and usage trends.

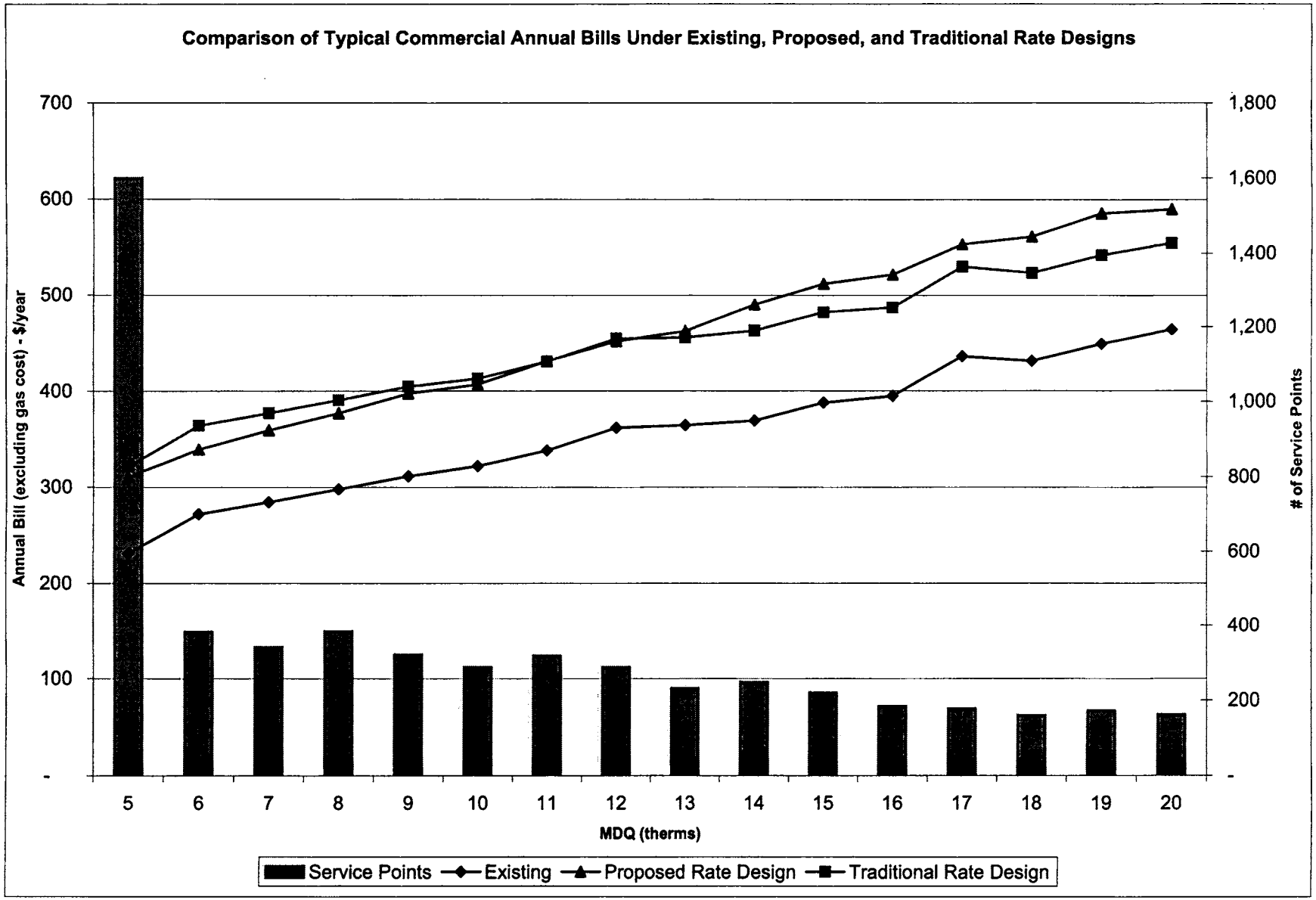


1 Based on actual customer usage for 36-months ending June 30, 2006.



1 Based on actual customer usage for 36-months ending June 30, 2006.


Comparison of Typical Residential Annual Bills Under Existing, Proposed, Traditional, and Flat Charge Rate Designs
Annual Bill (excluding gas cost) - $/year
# of Service Points
MDQ (therms)
450.00
400.00
350.00
300.00
250.00
200.00
150.00
100.00
50.00
-
25,000
20,000
15,000
10,000
5,000
-
5
6
7
8
9
10
11
12
13
14
15
Service Points
Existing
Proposed Rate Design
Traditional Rate Design
Flat Charge


Comparison of Typical Commercial Annual Bills Under Existing, Proposed, and Traditional Rate Designs
Annual Bill (excluding gas cost) - $/year
# of Service Points
700
600
500
400
300
200
100
-
1,800
1,600
1,400
1,200
1,000
800
600
400
200
-
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
MDQ (therms)
Service Points
Existing
Proposed Rate Design
Traditional Rate Design