INNOVATIVE APPROACHES TO ALIGN LDC RATES TO FIXED COST STRUCTURES

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Background

Aquila's Iowa gas operation serve about 146,000 customers, and approximately 144,000 of those customers are served under the residential/general service schedules. Most of these customers are in rural towns with little or no growth. Aquila serves 144 Iowa towns, with only two towns (Council Bluffs and Dubuque) over 10,000 customers. The remaining customers live in town that average about 600 customers. Residential usage per customer has declined from about 115 Mcf per in Aquila's 1992 case to about 90 Mcf this year. This decline is partially related to robust energy efficiency programs that were initiated in the early 1990s, and to warmer than normal weather the last eight years. Approximately half of the Aquila's non-gas revenues are recovered through fixed customer charges ($9.20 residential and $11.20 commercial), and the remainder recovered through a volumetric charge of $1.18 per Mcf. Some interclass inequity exists in the current rate design - residential customer usage ranges from approximately 40 to 160 Dekatherms annual usage, and commercial customer usage ranges from approximately 100 to 500 Dekatherms annual usage. The demand charge concept has been generally applied to the Large Volume classes since at least 1992, and to Small Volume customers since 2003.

In October, 2005, Michael Vilsak, the Governor of Iowa, signed a resolution supporting the Midwest Natural Gas Initiative, which is a grass roots effort to encourage a reduction in natural gas consumption of at least one percent per year for the next five years.

Aquila asked Black and Veatch to propose rate design alternatives that would provide several objectives:

- Reduce the impact of the uncertain volumetric sales due to the "weather lottery" by stabilizing revenues
- Reduce the impact of intra-class subsidies
- Match revenues to cost causers.

These efforts would improve the opportunity for the Company to recover its fixed non-gas costs that the Iowa Utility Board has deemed prudent.

Problems with current LDC rate design

Mismatch of Costs

Aquila's current two-part rate design (customer charge and variable commodity charge) for recovery of margin related costs represents a mismatch between the fixed nature of the local network delivery network costs and the highly variable commodity pricing structure which is intended to recover these charges. The rate structure should be aligned with the fixed nature of Aquila's network costs.

The existing rate design is unfair because it relies so heavily on collecting fixed non-gas costs through a commodity charge applied to variable consumption units that it impairs the Company's ability to recover its fixed cost and sends an incorrect pricing signal to the customers because it does not fairly represent the marginal cost of increasing throughput on the local delivery network. This problem is further exacerbated by declining consumption and slow load growth.

Aquila's existing two-part rate design does not properly match costs and revenues, and it impairs the Company's ability to collect non-gas revenues sufficient to cover non-gas costs. The existing rate design relies too heavily on commodity rates applied to variable consumption units (which, as discussed below, are declining) to collect non-gas costs which are primarily fixed in nature. As non-gas costs increase and consumption decreases, combined with Aquila's minimal load growth, the existing rate design compounds the problem of this mismatch.

In the past, a rate design that recovered fixed costs through a variable charge was no more correct than it is today; however, the effect on utility revenues was masked by increasing loads or growth. In today's market with energy efficiency programs, small load growth, higher gas prices and warmer temperatures, under Aquila's existing rate design the company has little opportunity to collect its authorized non-gas revenues.

Business Challenges

There are three general problems with the current rate design:

- The multi-year reduction in usage per customer, which exceeds customer growth, has caused an erosion in margin.
- Warmer than normal weather has resulted in about a one percent reduction in ROE.
- The residential customer charge does not recognize the changes in cost to serve large and small residential customers.

The recent increase in gas prices is expected to result in additional emphasis on energy efficiency programs, which will further reduce usage. Tables 1, below, shows a 4.6 percent decline in General Service usage since 2001. Since the General Service class represents 99 percent of sales margin, the decline in GS usage means Aquila earned less margin in 2004 that it had earned after the company's last rate case was settled in 2002, even though Aquila added 2,983 customers. The combination of warm weather and declining usage means the Company has had little chance to earn its authorized return.

Table 1
Annual Usage (in Therms)

20 Year Normalized Usage (Therms):	2001	2004	Change	% Change
General Service, Residential	118,018,870	112,031,338	-5,987,532	-5.1%
General Service, Commercial	53,966,210	52,126,700	-1,839,510	-3.4%
Total General Service	171,985,080	164,158,038	-7,827,042	-4.6%
Small Volume	1,878,620	5,137,555	3,258,935	173.5%
Large Volume	831,250	1,136,454	305,204	36.7%
Total Sales	174,694,950	170,432,047	-4,262,903	-2.4%
Transportation	102,089,050	108,879,400	6,790,350	6.7%
TOTAL	276,784,000	279,311,447	2,527,447	0.9%

As shown in Table 2, the average annual usage per residential customer declined from 93 dekatherms in 2001 to 87 dekatherms in 2004.

Table 2
Average Annual Usage per Customer (in Therms)

Normalized Usage Per Customer (Therms):	2001	2004	Change	% Change
General Service, Residential	935	874	-61	-6.5%
General Service, Commercial	3,568	3,396	-172	-4.8%
Small Volume	9,254	26,079	16,825	181.8%
Large Volume	92,361	94,705	2344	2.5%
Total Sales	1,234	1,186	-48	-3.9%
Transportation	31,364	26,785	-4579	-14.6%
TOTAL	1,912	1,890	-22	-1.1%

Historical residential usage per customer (UPC) has declined significantly in most years since 1992, as shown below in Figure 1. Aquila attributes this decrease to the replacement of less energy efficient housing stock with more energy efficient structures, as well the installation of more energy efficient natural gas appliances. In addition, the energy efficiency programs implemented by Aquila and other utilities in Iowa have clearly had an impact in reducing natural gas usage per customer. Although utilities will continue to periodically file for rate increases, customer efforts to reduce natural gas usage remain worthwhile, given the fact that approximately 80% of the customer's bill is related to the cost of purchased gas. Any efficiencies gained by the customer render the gas portion of the bill an avoided cost, both in the short and long run.

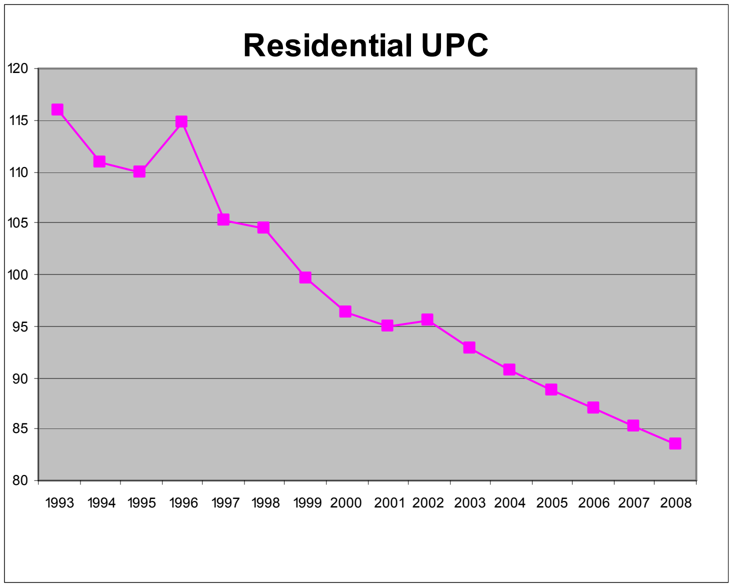


Figure 1
Historical Residential Usage per Customer

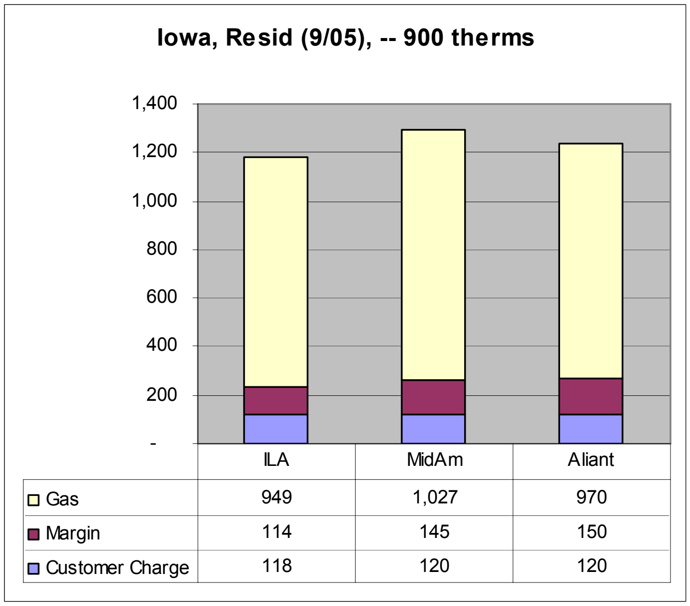
As shown in Table 3, Aquila has experienced average annual customer growth of only 0.6 percent since 2001.

Table 3
Annual Customer Growth

Customers, 12 Month Average for the Year	2001A	2002A	2003A	2004A	2005F
Total Regulated Customers					
Residential	126,188	127,383	127,606	128,221	129,498
Commercial	15,219	15,418	15,448	15,478	15,629
Industrial	122	111	102	93	93
Transport	302	320	334	330	326
Total Reg Customers	**141,831**	**143,232**	**143,490**	**144,122**	**145,546**
Pct Growth by Year		1.0%	0.2%	0.4%	1.0%
Average Growth/year			**0.6%**		

Chart 1, below, shows the total annual bill for average residential Iowa customers for the three largest utilities – Aquila, MidAmerican Energy and Alliant, based on September gas prices and published tariffs. MidAmerican and Alliant serve larger Iowa cities of Des Moines, Sioux City and Cedar Rapids.

Chart 1
Average Annual Residential Bill in Iowa



Reasons for Declining Usage per Customer

The Iowa Utilities Board (IUB) recently issued a report that identified the natural gas savings related to the energy efficiency programs mandated by the Board. Charts 2 and 3 below show the IUB has concluded that the programs have resulted in reduced natural gas consumption of over 650,000 Therms in 2004, and over 6 Bcf cumulative reduced consumption since program inception.

Chart 2
Energy Efficiency Incremental Savings (in Dekatherms)

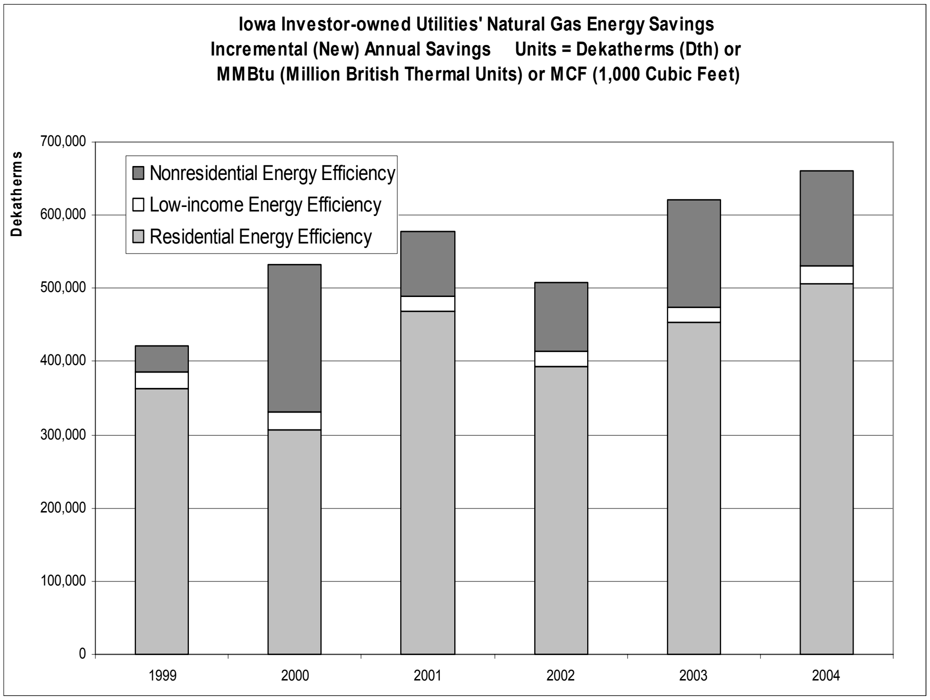
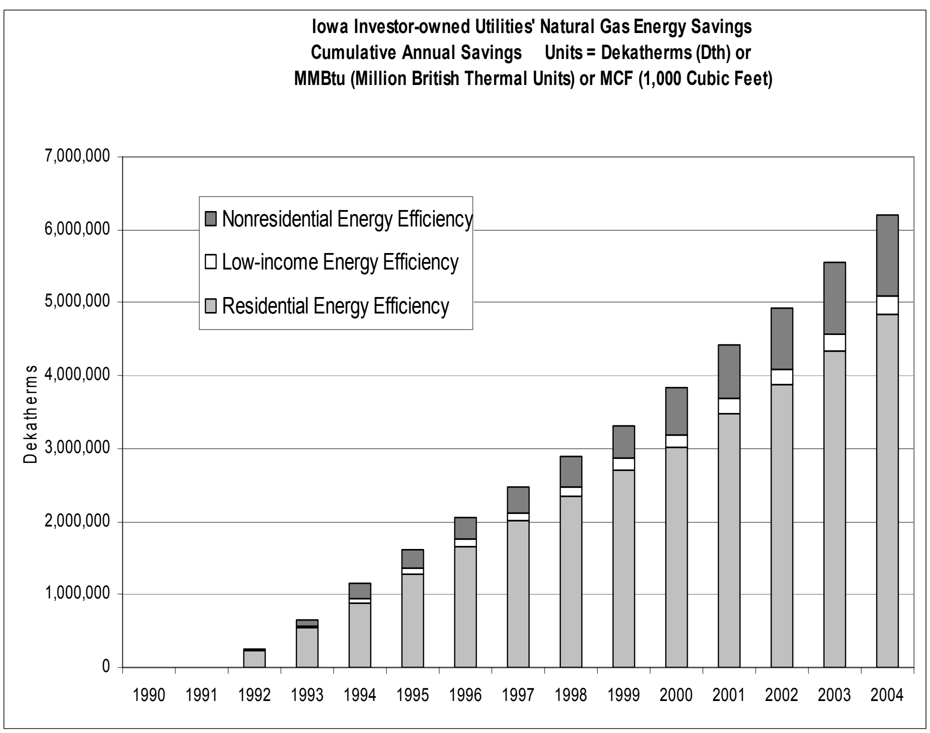


Chart 3
Energy Efficiency Cumulative Savings (in Dekatherms)



Aquila's energy efficiency program was revised in 2004 to include the following program offerings shown in Table 4 below.

Table 4
Energy Efficiency Program Offerings

	Program Offering
Residential	
Residential Heating	Furnace replacement
	Envelope measures retrofit
	Water heating
	Setback Thermostats & maintenance of furnaces
	Innovative space & water heating technologies
Residential New Construction	Performance-based incentives for high-efficiency construction
Residential Audit	Site visits & low cost measures
School-Based Energy Education	Curriculum materials & low cost measures
Commercial	
Commercial	Small commercial audits
	Prescriptive rebates
	Custom rebates
Special Programs	
Low Income	Weatherization
	Energy education
	Habitat for Humanity (new construction)
Other	Trees
Other	Energy center

Aquila's current energy efficiency program involves budgeted expenditures of $2.6 million, which are recovered on a contemporaneous basis. Table 5 summarizes 2004 program performance.

Table 5
Energy Efficiency Program Performance

	Budget or Goal	Actual	% Budget or Goal Achieved
Expenditures	$ 2,640,000	$2,335,588	88%
Energy Impacts	69,582	97,827	141%
Demand Impacts	848	1,285	152%
Participation	6,430	9,538	148%

Figure 2 shows 2004 Energy Savings (MCF) by Program. Rebates for furnace replacement and setback thermostats have resulted in about 60 percent of the energy savings.

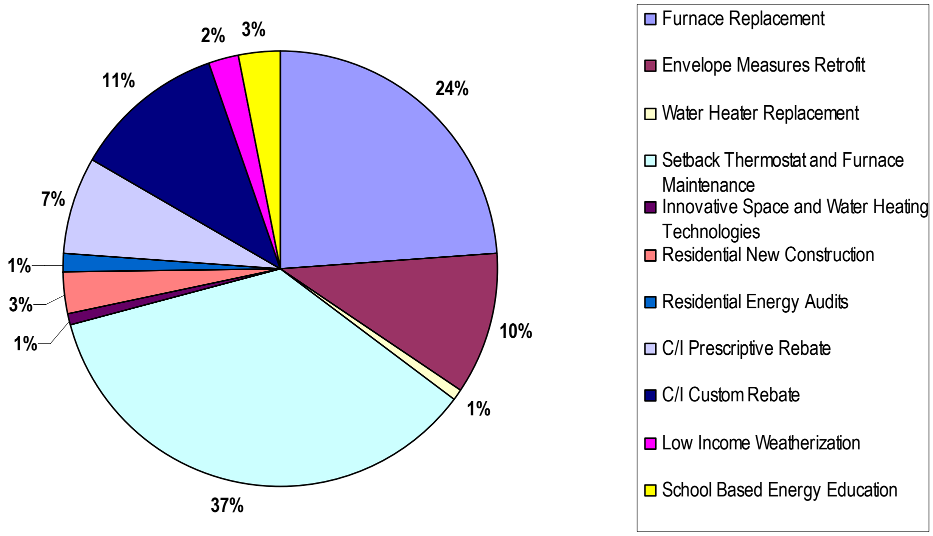
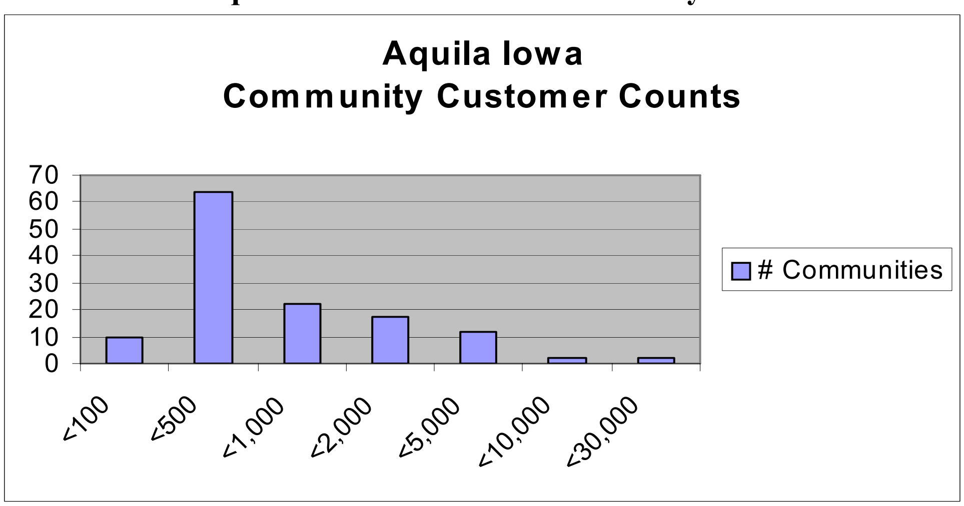


Figure 2
Energy Efficiency Savings (MCF) by Program

Aquila serves only two communities with populations over 10,000. Chart 4 below shows the number of communities served by size. Small rural towns have experienced declines in population in the past ten years, and this demographic is a partial cause of the declining natural gas use per customer.

Chart 4
Aquila Iowa Communities Served by Size



Additionally, Aquila's Iowa service territory experienced significantly warmer weather than normal in 2004. Based on a comparison of actual heating degree-days (HDDs) to normal HDDs, conditions during the test year were warmer than normal. The data for the eight weather stations within Aquila's Iowa service area is shown in Table 6. 20 year normals are based on actual HDD data for the period 1985 – 2004. Had National Oceanographic and Atmospheric Administration (NOAA) thirty-year weather normals (1971-2000) been used in the comparison, the variance would have even greater. Warmer weather exacerbates the margin erosion problem described previously.

Table 6
Weather Station Data

Weather Station	Actual HDDs in 2004	20 Year Normal HDDs	% Warmer Than Norms
Cedar Rapids	5,984	6,279	4.7%
Des Moines	5,934	6,221	4.6%
Dubuque	6,770	7,021	3.6%
Mason City	7,428	7,546	1.6%
Omaha	5,811	6,063	4.2%
Sioux City	6,440	6,696	3.8%
Spencer	7,104	7,503	5.3%
Waterloo	6,754	7,002	3.6%

A study prepared for Aquila's filing, which analyzed historical data over the last 42 years, demonstrated that NOAA 30-year average weather data corresponded poorly to actual weather conditions experienced during the period that rates actually went into effect[1]. NOAA data would have predicted colder conditions than actually occurred, which would have overstated test year billing units, and thus lead to under collections in revenues. Use of normalized data based on historical periods shorter than 30 years is a partial solution to this observed phenomenon. However, introduction of a rate design that allows for recovery of a greater portion of margin revenue on a non-commodity basis than exists under Aquila's pre-filing two-part rate structure significantly mitigates the impacts of weather on the Company's ability to collect its approved revenue requirement.

[1] This study compared the then available NOAA 30 year weather normals that would have been utilized in developing test period HDDs for each of the past 42 years with actual HDDs that resulted in each year.

Creative Rate Design Solutions to Business Challenges

Based on the challenges facing Aquila identified above, the Company considered a variety of rate design related options. These included implementation of fixed rates, a modification to the existing two-part rates and a new three-part rate.

Fixed Rate Option

This alternative consisted of a flat monthly fixed charge, similar to a customer charge. While this methodology has generally accepted use in the telephone, cable, and data industries, this method applied to the existing rates would not adequately recognize differences in customer size within rate schedules (a characteristic not as explicit in the other industries). If a flat monthly charge were to be used, the General Service class might have to be split up into multiple rates or tiers recognizing differences in customer size. A small residential customer, an apartment resident for example, would have a smaller meter or might jointly use a service and regulator with other small customers, and would put a smaller load on distribution mains compared to a larger single dwelling residential customer.

Modified Two-part Rate

Another option was to retain the existing rate design, but significantly increase the customer charge to address declining usage issues. Obviously, this would have been the simplest solutions to propose from a rate design perspective. However, the intra-class and billing impact equity issues identified above would also remain a significant concern, and thus made this alternative problematic. Therefore, the two-part design was rejected.

Three-part Rate

The third option, and the one proposed by Aquila in its rate filing, was a new rate structure composed of a Customer Charge, a Commodity Charge and a Demand 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 collects these fixed capacity charges from system users. 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 many 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.

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 which, at today's commodity prices, account for over 75 percent of total revenues. The remaining 25 percent of total revenues (the margin component of the rate) collect primarily 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.

Details of Three-part Rate

Mechanics

The customer charge and commodity components of the three-part rate function exactly as they do under existing rates. However, the Commodity Charge is significantly less than existing Commodity Charge because a portion of the revenues that used to be collected through the Commodity Charge will now be collected through a Demand Charge.

The Demand Charge component is based upon the customer's level of Maximum Daily Quantity (MDQ). The MDQ is calculated by dividing the volumes delivered to the customer during its month of highest usage during the last 36 months by 20. The MDQ is initially set based on the 36 month historical billing data available at the time the rate takes effect. Customers with less than 36 months of billing history will have their MDQ based on the available period of billing history that they have accumulated at the time the rate takes effect. Beginning in August 2006 and every August thereafter, the MDQ will be reset based on a rolling 36-month history of usage data available at that time. Except for new customers (customers with less than 12 months of billing history), the MDQ cannot change by more than plus or minus 10% from the prior MDQ rounded to the nearest therm. When a new customer begins service, they will be assigned a minimum MDQ of 5 therms until the subsequent August, when their MDQ will be determined based on their actual available usage. However, the MDQ will never be less than the minimum of 5 therms.

The customer's demand charge is calculated by multiplying their MDQ by a monthly Demand Charge rate. The Demand Charge rate, once established, will not be modified until Aquila files another rate request. The Demand Charge rate, as filed, is designed to collect approximately 50 percent of non-gas cost margin revenues not collected through the customer charge via the Demand Charge. The other 50 percent of non-gas margin revenues not collected through the customer charge is collected through a Commodity Charge.

Special Features

General Service customer meters 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, Aquila is dividing monthly usage by 20, which results in an implied monthly load factor of about 66 percent. This is a reasonable proxy for the determination of monthly demand. Additionally, the Missouri Public Service Commission has accepted this approach for Aquila's use in designing the large volume firm gas service tariff in Missouri, where demand metering does not exist.

Since a customer's MDQ is only 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 the regression analyses that were performed as part of the rate case's weather normalization adjustment, a typical residential customer's heat sensitive demand equals approximately 0.12 therms per HDD and base non-heat sensitive use ranges from about 10 to 20 therms per month. In the Company's Iowa service territory, the peak day HDDs are approximately 70. Based on these figures, a typical residential customer would use about 9 therms on a peak day (0.12 times 70 plus 20 divided by 30). The maximum month's usage divided by 20 was calculated for every customer taking service during filing's the test year and then plotted as a frequency distribution. It was found that 95 percent of the residential customers would have a maximum demand that exceeded 5 therms. Based on these two factors, it was determined that a minimum demand of 5 therms is reasonable. 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 takes effect. When a new customer begins service, they will be assigned a minimum MDQ of 5 therms per day for determination of their Demand Charge. 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 on the rolling history of usage data available at that time and fixed for the next succeeding 12 month period.

Additionally, Aquila is including a provision with regards to the annual recalculation of MDQ that mitigates the impact that changes in its level may produce on customer bills. Except for new customers (those who have been added in the last year), the MDQ cannot change by more than 10% (up or down) from the previously established amount, irrespective of the billing history data available at the time of recalibration. This will provide customers stability and predictability in their bills.

For new customers, during their first recalibration period, the MDQ will be based upon the rolling history of usage data available at that time without a 10 percent limit (from the minimum). Thereafter, any potential changes in MDQ that may occur during subsequent recalibration periods will be subject to the same 10% cap as all other customers. For example, if a new customer connects to the system in September 2006, this customer will initially be assigned an MDQ of 5 therms. If, by August 2007, this customer's highest month's usage was during December 2006 and was 242 therms, this customer's MDQ will be 12 therms (242 divided by 20) for August 2007 through July 2008. The 10 percent limit will not apply to this customer for the recalculation in August 2007 (their first recalibration period). However, the 10 percent limit will apply to this customer for subsequent recalculations. For example, this customer's MDQ in August 2008 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).

Benefits

Aquila's demand charge solution has at least five significant advantages. First, it does not establish fixed points where a customer's price or bill would change. The larger the customer's load profile, the demand charge would reflect that higher demand usage. Second, unlike rate design alternatives that require the redefining of the General Service rates into multiple rate levels or tiers, this rate design inherently recognizes individual customer usage within existing class definitions. Third, it encourages more efficient use of the natural gas distribution system. Fourth, a demand charge provides a more direct link between capacity costs and revenues. Finally, from Aquila's perspective, the demand charge mitigates approximately half of the impacts of variable weather and declining usage.

The three-part rate structure provides customers stability and predictability in their monthly billings. Under the Company's current rate design, monthly bills are highly seasonal, peaking during the coldest months. Aquila's rate design significantly reduces volumetric commodity charges from their current levels. Therefore, the element of seasonality inherent in the current rate structure is also lessened, thus offering customers more stability in monthly billings. The 10 percent cap on changes in customer MDQ discussed earlier offers an additional measure of predictability and stability.

Bill impacts

Table 7 below shows the calculation of monthly bills for a sample medium sized residential customer with an annual consumption level of 730 therms. The bills are shown under existing and proposed rates as filed in the case reflecting the three-part rate design and a filed increase of 2.6% as measured against existing total revenue. Additionally, these impacts are depicted graphically in Figure 3. The table shows that the proposed change would result in a modest 2.1% increase in total annual bill for this customer. Figure 3 shows the impact of the demand charge, which helps mute the extremes in summer and winter bills.

Table 7
Sample Residential Customer Bill Impacts

Month	Total Bill Current Rates	Total Bill Proposed Rates	Change in Total Bill
	$	$	$
January	140.84	136.41	(4.43)
February	105.08	103.08	(2.00)
March	78.27	78.08	(0.18)
April	51.45	53.09	1.64
May	41.70	44.00	2.30
June	41.70	44.00	2.30
July	25.45	28.85	3.40
August	19.76	23.55	3.79
September	20.58	24.31	3.73
October	26.26	29.61	3.34
November	48.20	50.06	1.86
December	104.27	102.32	(1.95)
Total	703.57	717.35	13.78
Annual Percentage Change		2.0%	

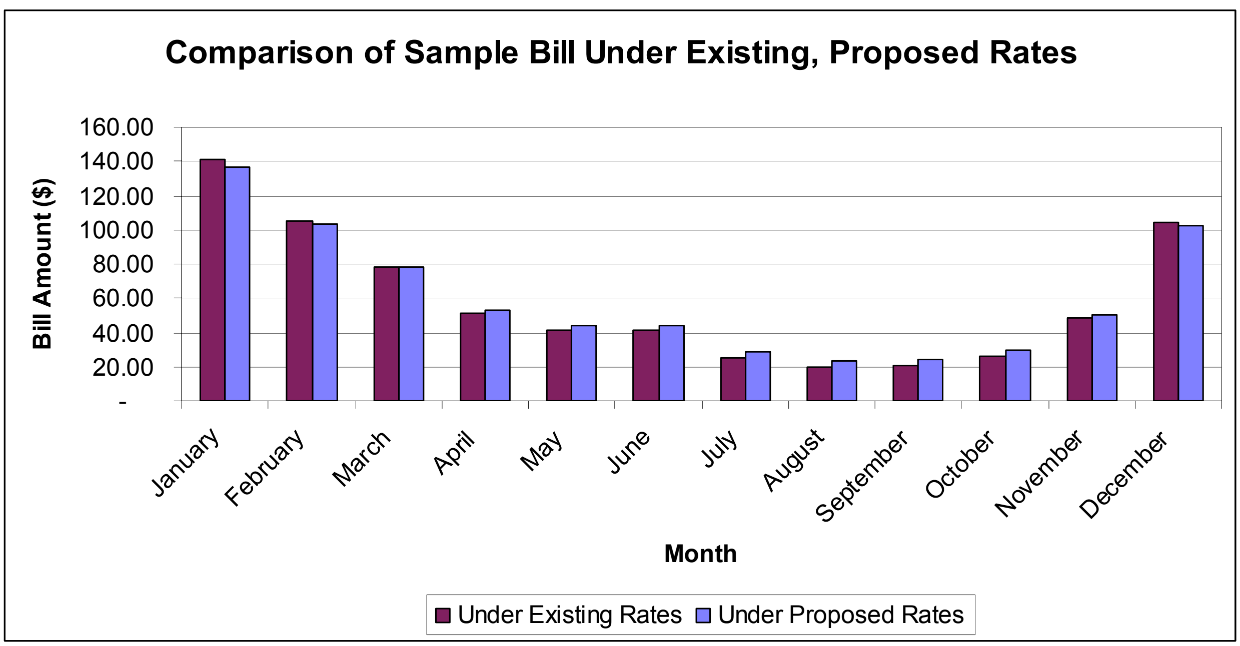


Figure 3
Sample Residential Customer Bill Impacts

A couple of critical observations can be made about these comparisons:

1. The non-gas portion of the bill is more levelized under proposed rates. This can best be seen by the fact that winter bills are smaller under proposed rates (even with a rate increase) and summer bills are higher. If the existing structure were maintained, all bills would be higher under proposed rates.
2. The non-gas portion of the bill under proposed rates will be impacted less by abnormal weather. Stated differently, the non-gas portion of the bill under existing rates will have more variability due to weather. In the non-gas portion of the bill, only the commodity charge is impacted by variation in weather and this portion of the bill is approximately twice as large under existing rates as it would be under proposed rates.

Regulatory considerations

Stakeholder Perspectives

Aquila considered three solutions to the conditions described above: (1) a traditional two-part design with an increased customer charge, (2) a three-part rate design, including a new demand charge that is based on peak day usage, and (3) a tracker mechanism that would identify variations from approved sales, which would be recovered in a subsequent period. The three-part rate design was chosen because it corrects the existing inequities in the current rate design and aligns rates and costs more accurately than the current structure. The two-part design was rejected because it would have exacerbated the intra-class inequities as the customer charge was increased. A tracker mechanism was not proposed because it would have involved an additional element of regulatory lag and would not have corrected the intra-class inequities or subsidies. The proposed demand charge concept also helps mitigate the impact of both weather and declining usage, and benefits customers by more accurately assigning costs to customers. Each customer will have a unique monthly charge based on their peak day usage, which results in a fairer distribution of costs. Over 80 percent of a customer's bill will still represent gas costs and a commodity charge based on volumes, so customers will be motivated to conserve energy. The rate design will also reduce the seasonality of bills, reduce the impact of cold weather and reduce bills for the smallest users. Aquila performed a load analysis for all residential customers, and has identified those customers with the highest heating usage, many of which are low income customers. This design should result in lower annual bills for low income customers.

The Iowa Office of Consumer Advocate (OCA) opposed the proposed three-part design for three basic reasons. First, OCA expressed concern that the demand charge would result in additional fixed monthly charges, which would alter the pricing signal to customers. Aquila argued that pricing signals would not change, since gas costs represent over 80 percent of customer bills. OCA also argued that the calculation of peak day usage was an estimate, and that peak day metering was necessary. Aquila argued that the proposed peak day usage calculation was simply the peak month usage based on the prior 36 months, converted to a daily amount. Third, OCA argued that customers would not receive the benefit of energy efficiency savings, since the demand units would not fully reflect the change in usage for up to three years. Aquila noted that because gas costs represent over 80 percent of a customer's annual bill, this concern was immaterial.

The hearing for this issue was held on November 7, 2005. The Board members seemed to understand a decoupling mechanism was appropriate, and asked several questions at the hearing that give some indication of their concerns. One area of questioning addressed the MDQ concept and whether the rate design created a bias favoring Aquila, which could lead to over-recoveries. A second group of questions referred to the analyses conducted before this rate design was selected, including multi-tier customer charges and tracker mechanisms. The question of whether a lower return is appropriate was not raised, presumably because it will be ripe for discussion in the company's next rate case. A Board decision is expected in January 2006.

Energy Efficiency and Conservation Impacts

The three-part rate design that Aquila proposes to adopt does not significantly impact the price signal embedded in existing rates to conserve energy. In Table 8 below, the bill impact associated with a medium sized residential customer conserving about 20 percent in annual heat sensitive usage (a situation that might occur if a customer replaced an existing furnace with a more efficient furnace) under both existing rates and proposed final rates are shown. Under existing rates, this customer receives about a 13 percent annual decrease in their bill from lowering their usage. Under the proposed three-part rate design, the customer receives approximately a 12 percent annual decrease in their bill from lowering their usage by the same amount. Therefore, proposed final rates preserve almost the entire price signal to conserve energy embedded in existing rates. Additionally, the proposed rates will provide the customer with a longer-term conservation related benefit that in not reflected in the example. As the customer's demand decreases due to conservation efforts, within 36 months of the recorded decrease in demand, their MDQ used in calculating the demand charge will also decline. Therefore, over time, the bill impact benefits accruing to the customer from conserving energy under proposed final rates will essentially equal those provided under existing rates.

Table 8
Conservation Bill Impacts of Proposed Rate Design

			Bill Calculation								
			Under Existing Rates				Under Propesed Final Rates				
Description	Usage therms	Demand therms	Customer $	Commodity $	Cost of Gas $	Total Bill $	Customer $	Rates Commodity $	Demand $	Cost of Gas $	Total Bill $
Medium Residential (Normal)											
January	162	8.0	9.20	19.23	112.41	140.84	10.50	10.30	3.20	112.41	136.41
February	118	8.0	9.20	14.00	81.88	105.08	10.50	7.50	3.20	81.88	103.08
March	85	8.0	9.20	10.09	58.98	78.27	10.50	5.40	3.20	58.98	78.08
April	52	8.0	9.20	6.17	36.08	51.45	10.50	3.30	3.20	36.08	53.09
May	40	8.0	9.20	4.75	27.76	41.70	10.50	2.54	3.20	27.76	44.00
June	40	8.0	9.20	4.75	27.76	41.70	10.50	2.54	3.20	27.76	44.00
July	20	8.0	9.20	2.37	13.88	25.45	10.50	1.27	3.20	13.88	28.85
August	13	8.0	9.20	1.54	9.02	19.76	10.50	0.83	3.20	9.02	23.55
September	14	8.0	9.20	1.66	9.71	20.58	10.50	0.89	3.20	9.71	24.31
October	21	8.0	9.20	2.49	14.57	26.26	10.50	1.33	3.20	14.57	29.61
November	48	8.0	9.20	5.70	33.31	48.20	10.50	3.05	3.20	33.31	50.06
December	117	8.0	9.20	13.89	81.18	104.27	10.50	7.44	3.20	81.18	102.32
Total	730		110.40	86.64	506.54	703.57	126.00	46.39	38.42	506.54	717.35
Medium Residential (Conservation Reduction)1											
January	132	8.0	9.20	15.69	91.73	116.62	10.50	8.40	3.20	91.73	113.83
February	97	8.0	9.20	11.51	67.31	88.02	10.50	6.16	3.20	67.31	87.17
March	71	8.0	9.20	8.38	48.99	66.57	10.50	4.49	3.20	48.99	67.18
April	44	8.0	9.20	5.25	30.67	45.12	10.50	2.81	3.20	30.67	47.18
May	35	8.0	9.20	4.11	24.01	37.31	10.50	2.20	3.20	24.01	39.91
June	35	8.0	9.20	4.11	24.01	37.31	10.50	2.20	3.20	24.01	39.91
July	19	8.0	9.20	2.21	12.91	24.31	10.50	1.18	3.20	12.91	27.79
August	13	8.0	9.20	1.54	9.02	19.76	10.50	0.83	3.20	9.02	23.55
September	14	8.0	9.20	1.64	9.58	20.41	10.50	0.88	3.20	9.58	24.15
October	19	8.0	9.20	2.30	13.46	24.96	10.50	1.23	3.20	13.46	28.40
November	41	8.0	9.20	4.87	28.45	42.52	10.50	2.61	3.20	28.45	44.76
December	96	8.0	9.20	11.42	66.75	87.37	10.50	6.11	3.20	66.75	86.57
Total	615		110.40	73.01	426.88	610.29	126.00	39.10	38.42	426.88	630.40

			Bill Calculation	
Description	Total Usage (therms)	Demand	Under Existing Rates	Under Proposed Final Rates
Medium Res Normal	730	8.0	703.57	717.35
Medium Res Conservation Reduction	615	8.0	610.29	630.40
Savings - $			93.28	86.95
Savings - %			13.26%	12.12%

(1) Conservation Reduction = a 20 percent reduction in non base load usage, where base load usage is equal to the usage on the August bill.

Implementation Considerations

Aquila considered a number of implementation issues before proposing the three-part design, including:

1. Metering
2. Customer information and billing systems
3. Customer education
4. Tariff terms and conditions.

These are discussed below.

Metering

Aquila does not have peak day metering capability for residential and commercial customers, and therefore does not have the ability to obtain demand related billing data for general service customers.

Customer Information and Billing Systems

Aquila's billing system already had the capability to store demand units and tariffs that defined the MDQ concept. The system did not have the capability to retain changes to the MDQ units in the event of billing adjustments, so some system enhancements were required.

Customer Education

Aquila recognized that the introduction of a demand charge for General Service customers would require some customer education. Although the explanation of the calculation of the demand units is fairly complex, Aquila believes the benefits to customers (lower winter bills, less sensitivity to cold weather) will be received positively.

Tariff Terms and Conditions

Aquila found it was challenging to quantify several issues in tariffs, including new customers, customer moves, and customers with significant changes in usage. These issues were discussed in summary form in the section of the paper discussing details of the three-part rate.

Acknowledgements

Data and observations for this report are taken from testimony, rebuttal testimony, surrebuttal testimony and responses to interrogatories filed by Aquila in Iowa Utilities Board Docket No. RPU-05-2 for the following expert/company witnesses:

Thomas J Sullivan
Expert Witness (Weather Normalization, Class Cost of Service Study, and Rate Design)

L. W. Loos
Expert Witness (Normal Heating Degree Days)

Paul H. Raab
Expert Witness (Rate Design Policy)

Dr. Donald A. Murry
Expert Witness (Return on Rate Base)

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