ATTORNEY GENERAL OF MISSOURI

JEFFERSON CITY
65102

JEREMIAH W. (JAY) NIXON
ATTORNEY GENERAL

P.O. Box 899
(573) 751-3321

January 6, 2004

Public Service Commission
Governor Hotel
Jefferson City, MO 65102

RE: In the Matter of the Aquila, Inc. d/b/a Aquila Networks-Missouri Public Services (MPS) and Aquila Networks-L&P, Natural Gas, Generated Rate Increase, Case No. GR-2004-0072

Dear Sir/Madam:

Enclosed for filing please find an original and 8 copies of Missouri Department of Natural Resources' Direct Testimony of Anita C. Randolph in the above-styled matter. Please stamp "filed" on the front page only for my records. Thank you.

Sincerely,

JEREMIAH W. (JAY) NIXON
Attorney General

Amy E. Randles

AMY E. RANDLES
Assistant Attorney General

AER:pah
Enclosure
c: Counsel of Record

STATE OF MISSOURI
PUBLIC SERVICE COMMISSION

In the Matter of Aquila, Inc. d/b/a Aquila Networks L&P and Aquila Networks MPS, and Its Tariff Filing to Implement a General Rate Increase for Natural Gas Service	))))	Case No. GR-2004-0072

AFFIDAVIT OF ANITA RANDOLPH

STATE OF MISSOURI)
) ss.
COUNTY OF COLE)

Anita Randolph, being duly sworn on her oath, hereby states that she has participated in the preparation of the foregoing Testimony in question and answer form; that the answers in the foregoing Testimony were given by her; that she has knowledge of the matters set forth in such answers; and that such matters were true and correct to the best of her knowledge, information and belief.

Anita Randolph

Notary Public

KAY A. JOHANNPETER NOTARY PUBLIC SEAL STATE OF MISSOURI

My commission expires:

KAY A. JOHANNPETER
Notary Public - Notary Seal
STATE OF MISSOURI
Moniteau County
My Commission Expires: Aug. 4, 2007

Subscribed and sworn before me this 2nd day of January 2004.

Exhibit No.:	
Issues:	Commitment to Provide Low or No Cost Weatherization Assistance to Aquila Natural Gas Low-Income Customers and Energy Efficiency Services to Residential and Commercial Customers.
Witness:	Anita C. Randolph
Sponsoring Party:	Missouri Department of Natural Resources' Outreach and Assistance Center, Missouri Energy Center
Type of Exhibit:	Testimony
Case No.:	GR-2004-0072

AQUILA NETWORKS NATURAL GAS RATE CASE

DIRECT TESTIMONY

OF

ANITA C. RANDOLPH

MISSOURI DEPARTMENT OF NATURAL RESOURCES

ENERGY CENTER

January 2, 2004

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI
TESTIMONY OF
ANITA C. RANDOLPH
DIRECTOR
MISSOURI DEPARTMENT OF NATURAL RESOURCES
ENERGY CENTER

CASE NO. GR-2004-0072

(This page intentionally left blank.)

Q. Please state your name and address.

A. My name is Anita C. Randolph. My business address is Missouri Department of Natural Resources, Energy Center, 1659 East Elm Street, P.O. Box 176, Jefferson City, Missouri 65102-0176.

Q. By whom and in what capacity are you employed?

A. I am employed by the Missouri Department of Natural Resources as the director of the Missouri Energy Center, a division of state government with its executive office located in Jefferson City, Missouri.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the Missouri Department of Natural Resources, an intervenor in these proceedings.

Q. Please describe your educational background and business experience.

A. I attended the University of Missouri and received a Bachelor of Journalism degree in 1974. In addition, I attended the University of Oklahoma and received a Master's in Public Health degree in 1988 with a specialty in environmental management. I have worked as a research analyst in the Missouri House of Representatives' House Research office. In this capacity, I developed legislative approaches for environmental, energy and natural resource issues for the Energy and Environment, State Parks, and Mining legislative committees. Prior to becoming the director of the Missouri Energy Center, I was employed by the Missouri Department of Transportation in its Office of Transportation Planning and Policy Development. In this position I worked directly with Missouri's Congressional Delegation, the Missouri Governor's Office and the Missouri General Assembly on legislative and appropriation issues affecting Missouri's transportation system. On July 13, 1998, I was

appointed director of the Energy Center, formerly the Division of Energy, by Mr. Stephen Mahfood, director of the Missouri Department of Natural Resources (MDNR).

Q. What is the purpose of your direct testimony in these proceedings?

A. The purpose of my direct testimony is to focus on the proposed $6.43 million annual natural gas rate increase by Aquila, Inc., d/b/a Aquila Networks – MPS and Aquila Networks – L&P and its relationship to the following issues:

- Low-income residential customers served by Aquila Inc.;
- The need for the company to implement a low-income residential weatherization assistance program consistent with federal weatherization assistance guidelines; and,
- The need to promote utility-based energy efficiency services for residential and commercial customers in Aquila, Inc.'s service territory.

The MDNR is seeking commitment by Aquila Inc. to provide funding for weatherization assistance for its low-income natural gas residential customers, and funding to provide utility-based energy efficiency services and programs for the company's residential and commercial customers.

Q. Please compare the funding levels of Aquila, Inc.'s current commitment to low-income weatherization assistance and energy efficiency services for residential and commercial customers with the amount of the proposed rate increase.

A. Aquila, Inc. is proposing an annual natural gas rate increase totaling $6.43 million for its two divisions that operate in Missouri; Aquila Networks – MPS and Aquila Networks – L&P. Aquila Networks – MPS is seeking a $5.619 million annual revenue increase while Aquila L&P is seeking a $0.81 million annual revenue increase. In both divisions, the largest

portion of the proposed rate increase is directed toward residential and small general use customers, including small commercial customers.

Of the $5.691 million annual revenue increase proposed for Aquila Networks – MPS, $4.4 million, or 78 percent is targeted toward residential customers and $791,456 or 14 percent is targeted toward small general use customers, including small commercial customers. Combined, this represents $5.2 million or nearly 93 percent of the revenue increase.

Of the $0.81 million annual revenue increase proposed for Aquila Networks – L&P, $526,363, or 64.9 percent is targeted toward residential customers and $210,439 or 25.9 percent is targeted toward general use customers, including small commercial customers. Combined, this represents $736,802 or nearly 91 percent of the revenue increase.

As described by the company's filing, Aquila, Inc. is seeking approval by the Missouri Public Service Commission to increase natural gas annual revenues to recover system improvement and operating costs for its two divisions operating in Missouri; Aquila Networks – MPS and Aquila Networks – L&P. Recognizing, to some extent, the adverse financial impact this $6.43 million annual rate increase will have on the poorest households within the company's service territories, Aquila, Inc. is offering annually $115,000, a portion of the savings achieved through the merger of Aquila and St. Joseph Light & Power Company, for low-income residential utility billing assistance – for both MPS and L&P gas customers.

Aquila, Inc. does not offer energy efficiency programs or products to their natural gas customers, including a low-income residential weatherization assistance program. Further, Aquila, Inc. does not offer new energy efficiency services or products through the current rate filing that would assist low-income residential, residential or small commercial

customers in reducing their consumption of natural gas or their monthly utility bill, through improved efficiency, in light of potentially higher energy bills as a result of this general rate filing and future Purchased Gas Adjustments.

Q. Please describe the format and content of your direct testimony as it relates to this natural gas rate case.

A. My direct testimony will first address low-income energy issues and the difficulties low-income customers face in paying their utility bills, the need for weatherization assistance for the company's low-income residential customers and the benefits of weatherization to low-income households as well as other rate-payers and the utility company. Following the low-income issue, residential and commercial energy efficiency and the opportunity to help customers in using energy more efficiently to help reduce the economic impact of rising energy costs ultimately passed on to all customers through higher energy rates will be addressed. And lastly, a summary of these issues will be presented along with proposed actions and funding amounts to support the proposals offered in my filed direct testimony.

Q. Please describe the relationship between home heating bills and low-income residential utility customers in Missouri.

A. Winter home heating bills in Missouri impose significant burdens on low-income households. In a report prepared by Fisher, Sheehan & Colton, Structuring a Public Purpose "Distribution Fee" For Missouri, July 1997, the authors noted that "According to the U.S. Department of Housing and Urban Development (HUD), a household that faces a shelter burden exceeding 30 percent of income is over-extended. Shelter burdens include rent or mortgage payments and all utility payments other than telephone. A household that is paying 20 to 25 percent of its income simply toward home heating (not taking into account non-heat

electric burdens) will not be able to stay below this 30 percent limit." (Structuring a Public Purpose "Distribution Fee" For Missouri, July 1997, page 6)

Q. Please describe the significance of home heating burdens on low-income households.

A. The significance of home heating burdens was also identified by Structuring a Public Purpose "Distribution Fee" For Missouri. "The significance of home heating burdens imposed on low-income households is very apparent when one considers the full range of incomes at which low-income residents of Missouri live. The 1997 study reported that most households that qualify for the Low-Income Home Energy Assistance Program (LIHEAP) in Missouri by living at or below 150 percent of poverty lived below the ceiling rather than at the ceiling. (Current LIHEAP eligibility is 125 percent of federal poverty guidelines) The report sets forth the actual distribution of winter heating burdens for Missouri LIHEAP recipients by income category using an average winter heating (natural gas) bill of $210.94 (Table 4, Winter Gas Bill As Percentage of Income LIHEAP Recipients By Income Range, Source: R. Colton and M. Sheehan, On the Brink of Disaster: A State-by-State Analysis of Natural Gas Winter Home Heating Bills). The report notes that a household with an annual income of $2,000 or less will have winter heating burdens of nearly 85 percent. Households living with annual incomes of $2,000 to $4,000 will have winter heating burdens of nearly 30 percent; and households living with annual incomes of $4,000 to $6,000 will have winter heating burdens of more than 16 percent." (Structuring a Public Purpose "Distribution Fee" For Missouri, July 1997, page 6 and 7 and Table 4, Winter Gas Bill As Percentage of Income LIHEAP Recipients By Income Range, page 30).

"The number of households with these extremely low levels of annual incomes (and thus high heating burdens) is significant." (Source: Structuring a Public Purpose "Distribution Fee" for Missouri", July 1997, page 7)

Q. Is there additional evidence that identifies the need for weatherization assistance?

A. Yes. An April 2003 report titled "On the Brink: The Home Energy Affordability Gap in Missouri" (Fisher Sheehan & Colton, April 2003), it was found that home energy is a crippling financial burden for low-income Missouri households. As noted in the report, "Missouri households with incomes of below 50% of the Federal Poverty Level pay 38% or more of their annual income simply for their home energy bills." And home energy unaffordability was not an exclusive characteristic of the very poor. "Bills for households between 50% and 100% of Poverty take up 13% of income. Even Missouri households with incomes between 150% and 185% of the Federal Poverty Level often have energy bills above the percentage of income generally considered to be affordable."

"Existing sources of energy assistance (utility billing assistance) do not adequately address the energy affordability gap in Missouri. Actual low-income energy bills exceeded affordable energy bills in Missouri by nearly $273 million at 2001/2002 winter heating fuel prices. In contrast, Missouri received a gross allotment of federal energy assistance funds of $38.7 million for Fiscal Year 2003." During the 2002/2003 winter heating season, the unaffordability gap (Missouri statewide) increased to more than $321 million.

The Missouri Department of Social Services, Division of Family Services reports that during the heating months of November 2002 through March 2003, Aquila, Inc. received utility bill assistance payments funded through LIHEAP totaling $915,464 that helped 4,692 low-income households to pay a portion of their utility bill. Of the 4,692 households helped by

LIHEAP during this period, 3,295 low-income households, or 70 percent of these LIHEAP recipients used natural gas provided by Aquila, Inc. to heat their homes.

Utility billing assistance funding has great merit, but does very little to address the need for long-term and sustainable benefits for low-income households. Despite utility billing assistance for Aquila, Inc. low-income natural gas customers, from January 2002 through March 2003, the average number of accounts in arrearage remained virtually unchanged; in January, 1,313 natural gas accounts were in arrearage, in February, 1,338 accounts were in arrearage and in March, 1,221 accounts were in arrearage (Data Request, MDNR-55, ER-2004-0034, Dawn Hall, Aquila, Inc., November 25, 2003). Weatherization improvements help low-income households to use energy more efficiently resulting in long-term benefits to both the customer and to the utility by reducing utility bills and potentially reducing arrearages.

Q. Do a large number of low-income homes in Missouri still need to be weatherized?

A. Yes. A significant number of low-income households in Missouri are in need of energy-efficiency improvements.

Information gathered from the state Weatherization Assistance Program (WAP) which is administered by the MDNR Energy Center, shows that from 1978 (beginning of the program in Missouri) through June 30, 2003, approximately 143,000 homes were weatherized in Missouri. The Energy Center estimates that approximately 450,000 eligible homes remain (as identified by the U.S. Census Bureau, Table P93. Ratio of Income in 1999 to Poverty Level by Household Type – Missouri). (In Missouri State Fiscal Year 2001, the eligibility was increased from 125% to 150% of the poverty level in response to the 2000 – 2001 heating crisis, resulting in approximately 100,000 additional homes meeting the eligibility

criteria.) Clearly, on-going and additional sources of low-income energy-efficiency services are needed.

Q. What is the estimated number of Missourians currently on weatherization waiting lists?

A. Statewide, more than 3,000 families are currently on weatherization waiting lists.

Q. How many new clients are added to that list annually?

A. On average, more than 2,300 households are added to that waiting list annually.

Q. At the current rate, how long would it take the state's weatherization program to meet the needs of eligible clients in the Aquila, Inc. service territory?

A. According to the 2000 U.S. Census Bureau, 458,416 Missouri low-income households are eligible to receive weatherization assistance statewide. Approximately 9 percent or 40,755 households (150 percent of poverty as of 2000 census data, all fuel types including electric and/or natural gas heated homes, including both Aquila and non-Aquila utility customers) are located in counties within Aquila, Inc. natural gas service territory. At current resource levels, and assuming no additional homes are identified as eligible to receive weatherization assistance, it is estimated that it would take approximately 20 years to serve those low-income households located within the natural gas service territory of Aquila Networks – MPS and Aquila Networks – L&P.

Q. What are some of the general benefits of low-income residential weatherization?

A. As noted earlier in my testimony, home heating is a high cost for individuals with low income. Overall, low-income households that qualify for weatherization spend more of their income on energy needs compared to non-low-income households. The decision and ability to pay one's utility bill often compete with other necessities. Many low-income individuals

live in older homes equipped with older, less-efficient heating systems and generally lack energy-efficiency items such as insulation.

Weatherization reduces space heating fuel consumption by an average (including all heating fuels) of 18.2 percent. Specifically for homes using natural gas for heat, weatherization reduces space heating fuel consumption by 33.5 percent. For homes using electricity for heat, annual space heating fuel consumption is reduced by 35.9 percent. (Source: "Progress Report of the National Weatherization Assistance Program," Oak Ridge National Laboratory, September 1997.)

Weatherization is a cost-effective means to help low-income individuals or families pay their energy bills year after year for the life of the energy-efficiency product. Weatherization reduces the amount of state and federal assistance needed to pay higher utility bills, keeps money in the local economy, results in a positive impact on the household's promptness in paying utility bills, reduces arrearages and helps to reduce environmental pollution through energy efficiency.

Q. Are there utility benefits from low-income energy efficiency services?

A. Yes. In addition to looking at energy-efficiency from a household perspective, it is beneficial to examine the benefits of a low-income energy-efficiency program from the perspective of energy service providers. Extensive research has found that low-income energy-efficiency programs result in substantial non-energy savings to utilities. These non-energy savings include reductions in working capital expense, uncollectible accounts, credit and collection expenses, and others.

The Pennsylvania Low-Income Usage Reduction Program (LIURP) for all Pennsylvania utilities is an example of benefits derived for low-income households to whom energy

efficiency was delivered. A payment of less than 100 percent means the specified low-income household did not completely pay the current month's utility bill. In contrast, a payment exceeding 100 percent means the low-income household not only paid the current bill, but paid off its arrears as well. For every Pennsylvania utility but one, the installation of energy efficiency products substantially improved the payment patterns of the treated low-income households. Indeed, the delivery of energy efficiency generally caused a substantial increase in the payment coverage of the household energy bill. In most cases, the low-income household moved from falling further and further behind by failing to pay the current bill, to paying the entire current bill and beginning to retire the arrears. (Source: "Structuring a Public Purpose 'Distribution Fee' for Missouri", Fisher, Sheehan & Colton, Public Finance and General Economics consultants, July 1997.)

Q. Do you have information regarding the success of utility-based weatherization assistance programs?

A. Yes. Pursuant to the terms and conditions of a stipulation and agreement filed and approved in AmerenUE's (UE) Case No. GR-97-393, UE implemented an experimental weatherization program for a two-year period ending on March 31, 2000 that was funded at $150,000 per year. In accordance with UE's natural gas rate case, Case No. GR-2000-512, the Missouri Public Service Commission supported and approved on October 17, 2000 a continuation of the weatherization program, funded by UE at an annual rate of $125,000 per year.

The UE experimental weatherization program was modeled after the federal Low-Income Weatherization Program administered on a statewide basis by the MDNR Energy Center. Weatherization services were provided through community action agencies, which the

MDNR Energy Center also contracts with to provide weatherization services in the administration of the federal weatherization program.

The East Missouri Action Agency, Inc. (EMAA) located in Park Hills, Missouri participated in the UE experimental weatherization project. The EMAA weatherized 72 homes. Based on the U.S. Department of Energy's National Energy Audit (NEAT) procedure, the 72 homes weatherized had an average benefit-to-cost ratio of 3.37 to 1; $3.37 saved for each dollar invested.

Q. Can you provide additional examples of utility-based weatherization assistance programs?

A. Yes. Since 1994, the Kansas City, Missouri, Department of Housing & Community Development (KCDHCD) and Missouri Gas Energy (MGE) have administered a joint low-income weatherization assistance program. In May 1999, TecMRKT Works, an independent consulting firm with offices in Oregon and Wisconsin, issued an evaluation of the MGE weatherization program.

The evaluation titled <u>An Impact Evaluation of Missouri Gas Energy Low-Income Weatherization Program</u> provided a detailed analysis on the effectiveness and value of the KCDHCD and MGE low-income weatherization program. The evaluation noted the following benefits:

(1) Customer's improved ability to pay their gas bill and significant dollar savings as a result of the program;

(2) High customer satisfaction with the program;

(3) Reduced arrearages; and

(4) Reduced collection costs.

By reducing arrearages, the number of utility service shutoffs and utility billing collection costs, there was a direct benefit to all residential ratepayers. This effective energy-efficiency program also reduced the amount or need for fuel payment assistance provided by federal and private resources.

The report noted that "Between its inception and March 1999, the Missouri Gas Energy Low-Income Weatherization Assistance Pilot Program served 343 clients providing an estimated savings of $61,720 a year in 1997 dollars or $1,167,540 in 1997 dollars over the 20 year life of the installed measures." Since energy costs are now higher in 2003 as compared to 1997, actual savings would be higher when adjusted for inflation and other cost variables such as Purchased Gas Adjustments.

On average, households using natural gas for space-heating, domestic hot water and cooking reduced their consumption by 34.4 million BTUs annually, or 20.9 percent of ***total gas consumption***, for a program-wide savings of 296 billion BTUs over the 20 year life of the installed measures. This gas savings was provided through a 28.2 percent reduction in ***space-heating- related*** gas consumption and an 8.5 percent increase in *baseload* consumption and provided each customer with annual savings of $155 dollars.

In addition, the program provided electric savings of 500 kWh per year per customer, or about $35.00 per year off the average bill. The benefit-to-cost ratio for the program was 1.62 to 1; $1.62 saved for each dollar invested.

Also in 1999, Oak Ridge National Laboratory completed a comprehensive evaluation of the national Weatherization Assistance Program and found the federal program to have a benefit-to-cost ratio of 1.51 to 1; $1.51 saved for each dollar invested.

Q. Please describe utility billing arrearage for Aquila, Inc. for the prescribed test year ending December 31, 2002.

A. According to Aquila, Inc., customers receiving natural gas service from the company have had difficulty in meeting their monthly utility bill.

Aquila, Inc. reports that approximately 12,406 natural gas accounts were in arrears each month during calendar year 2002 with an outstanding monthly average balance in excess of $1.14 million. (Data Request, MDNR-2, MDNR-3, Dawn Hall, Aquila, Inc., December 1, 2003; MDNR-27, Carl Turner, Aquila, Inc., December 1, 2003; MDNR-28, Carl Turner, Aquila, Inc., December 1, 2003; MDNR-55, ER-2004-0034, Dawn Hall, Aquila, Inc., November 25, 2003 and MDNR-56, ER-2004-0034, Dawn Hall, Aquila, Inc., November 25, 2003).

During calendar year 2002, Aquila – MPS experienced an average monthly arrearage balance of $1.035 million with over 11,000 customers unable to fully pay their natural gas bill. The monthly average number of accounts in arrearage grew dramatically from January 2002, the height of the heating season, through May 2002 – averaging approximately 11,557 accounts per month with an average outstanding balance of $1.4 million during this period. By May 2002, the average monthly outstanding balance grew to $1.5 million with 12,607 accounts in arrearage.

During calendar year 2002, Aquila – L&P experienced an average monthly arrearage balance of $100,911 per month with over 1,220 customers unable to fully pay their natural gas bill. Much like Aquila Networks – MPS, the monthly average number of accounts in arrearage grew to its highest levels from January 2002 through May 2002 with a monthly average of 1,306 accounts with an outstanding monthly average balance of $135,577. The highest

arrearage period for Aquila Networks – L&P occurred in February 2002 when total arrearage was $164,225.09, over 300% higher than their lowest arrearage month of October 2002 when arrearage was $53,023.87. Clearly, natural gas customers were having greater difficulty in meeting their winter heating utility bills.

Assuming a low-income annual heating bill in Missouri is estimated at $354 (at 2001/2002 winter heating prices) or 27.8 percent of an annual total household utility bill, as noted by the April 2003 report "On the Brink: The Home Energy Affordability Gap in Missouri", a savings of 33.5 percent due to weatherization improvements could help reduce space heating demand. The improved efficiency in natural gas space heating could result in annual savings of approximately $119 per year ($354 x .335 = $118.59). Over the life of such improvements, typically 20 years, the accrued savings would be approximately $2,372 for the low-income household ($118.59 x 20 = $2,371.80 at 2001/2002 winter heating prices), assuming no further increase in space heating cost. Such savings have been shown to help the low-income household meet its monthly utility bill and help reduce arrearage collections for the utility.

Q. Please describe the relationship between Aquila, Inc.'s billing arrearage and utility service disconnects for the prescribed test year ending December 31, 2002.

A. During calendar year 2002, 1,740 residential natural gas-only customers experienced service disconnects due to billing arrearage (Data Request, MDNR-7, Carl Turner, Aquila, Inc., December 1, 2003). During this period, Aquila Networks – MPS disconnected 1,655 residential natural gas-only customers due to utility billing arrearage. However, 1,818 residential customers receiving both natural gas and electric service from Aquila Networks – MPS were disconnected (Data Request, MDNR-32 & MDNR 60, ER-2004-0034, Carl

Turner, Aquila, Inc., December 1, 2003) with another 9,000 electric-only customers experiencing disconnects with nearly 3,000 of these disconnects occurring during the months of September and October – just prior to the 2002/2003 winter heating season (Data Request, MDNR-32, ER-2004-0034, Carl Turner, Aquila, Inc., December 1, 2003).

During this same period, Aquila Networks – L&P disconnected 85 residential natural gas-only customers due to utility billing arrearage (Data Request, MDNR-7, Carl Turner, Aquila, Inc., December 1, 2003). However, 162 residential customers receiving both natural gas and electric service from Aquila Networks – L&P were disconnected (Data Request, MDNR-32 & MDNR 60, ER-2004-0034, Carl Turner, Aquila, Inc., December 1, 2003) with another 162 electric-only customers experiencing disconnects (Data Request, MDNR-32, ER-2004-0034, Carl Turner, Aquila, Inc., December 1, 2003).

Q. Please describe Aquila, Inc.'s gross uncollectible revenues from their residential customers for the prescribed test year ending December 31, 2002.

A. During the 12-month period ending December 31, 2002, Aquila, Inc. reported uncollectible revenue from their natural gas-only customers at over $1.1 million (Data Request, MDNR-4, MDNR-29, Dawn Hall, Aquila, Inc., December 1, 2003; Data Requests, MDNR-29, MDNR-57, ER-2004-0034, Dawn Hall, Aquila, Inc., November 25, 2003). Low-income residential weatherization may have helped to reduce the amount of uncollectible revenues by reducing energy demand and thereby lowering monthly utility bills.

Q. Please describe natural gas expense increases and the impact on both residential electric and natural gas customers.

A. The patterns of natural gas price volatility and its impact on all consumers started several years ago. The volatility of natural gas supply and price has impacted consumers that rely on

gas to heat their homes and businesses and energy utilities that generate electricity through natural gas combustion units. This new demand for natural gas places additional pressure on natural gas supplies and prices. Missouri's electric utilities used about 7 billion cubic feet (Bcf) of natural gas in 1997, 16 Bcf in 1998, 19 Bcf in 1999 and 30 Bcf in 2000 – an average increase of 23 percent per year. (Governor's Energy Policy Council, June 2003 report, pg. 6). Beginning with the summer of 2000, natural gas prices began rising across the country. As we entered the 2000-2001 winter heating period, natural gas spot market prices had increased from approximately $2.00 per Mcf (1,000 cubic feet) to over $10. According to the Missouri Public Service Commission, the effects of the coldest November and December (2000) in Missouri history were still being felt in July 2001 by Missourians struggling to pay high heating bills from the winter of 2000-2001. Information presented in Chairman Simmons' July 2001 letter to Missouri's Congressional delegation indicated many of the investor-owned energy utilities reported higher numbers of residential customers (79,000 natural gas heated households) unable to fully pay for their energy bills. Although Chairman Simmons' concerns were focusing on natural gas heated households, this situation also occurs in electric heated households. Weatherization can help customers to use energy more efficiently and reduce their winter heating bills.

Wholesale natural gas prices spiked 287 percent higher during the winter of 2002-2003 than during the winter of 2001-2002, moving from $2.36 to $9.13 per million Btu (MMBtu) (Missouri Energy Bulletin, March 6, 2003). The natural gas spot price has remained high in historical terms. Throughout most of 2003, the average spot price for natural gas was above $4.00 per MMBtu, reaching a peak of over $9.00 per MMBtu in late February 2003. As of this writing, the price of natural gas was approximately $6.58 per MMBtu.

Q. Please describe the current weatherization program administered by Aquila, Inc.

A. The weatherization program offered by Aquila, Inc. is limited to eligible residential *electric* customers and was initiated on July 1, 1999. The program is not offered to residential natural gas customers served by either Aquila Networks – MPS or Aquila Networks – L&P. The program offers a limited number of energy conservation measures including compact fluorescent lamps (light bulbs), electric water heater tank wrap, electric water heater pipe wrap, low flow shower-head, kitchen aerator, floor insulation, attic insulation, wall insulation and duct repair. The program is funded through rates and was provided a budget of $23,840 during calendar year 2002. From July 1, 1999 through October 2002, Aquila, Inc. reports that 28 customers participated in this program with only 2 participating during the 12-month period ending December 31, 2002. Of the $23,840 budgeted, only $1,894 was expended. Clearly, the current "weatherization" program offered by Aquila, Inc. has not had the intended impact nor the potential participation rate given the current number of low-income residential customers served by the company (Data Requests, MDNR-33 through MDNR-38, Mathew Daunis, Aquila, Inc., November 25, 2003 and Data Requests, MDNR-47, MDNR-61, MDNR-62, MDNR-66, MDNR-74 and MDNR-75, ER-2004-0034, Matthew Daunis, November 25, 2003, Aquila, Inc.).

Q. Please describe the funding level required to support a low-income weatherization assistance program by Aquila, Inc.

A. Aquila, Inc. currently provides service to approximately 45,977 residential natural gas customers in 20 Missouri counties (Aquila, Inc. Application – Natural Gas General Rate Increase, Dennis L. Odell, Aquila, Inc., August 1, 2003) and a total of 52,277 natural gas customers in both Aquila Networks – MPS and Aquila Networks – L&P service territories.

According to the community action agencies currently providing weatherization services within Aquila, Inc.'s service territories, approximately 319 Aquila, Inc. low-income households are on waiting lists to receive weatherization services. In order to meet these customers' needs and additional Aquila, Inc. customers that may be added to the weatherization assistance waiting list in future months, MDNR requests annual funding of $151,200 for low-income weatherization. This utility-based weatherization assistance fund would supplement federal weatherization program funds and allow approximately 112 Aquila, Inc. low-income natural gas households to receive weatherization assistance (most current estimate available from the community action agencies providing Weatherization Assistance services to low-income households within Aquila, Inc. natural gas service area). This is based on a leveraging amount of $1,350 per household from Aquila, Inc.'s weatherization fund (this represents approximately a 50/50 cost share between Aquila, Inc. and federal weatherization assistance funds that would be provided to an eligible low-income household receiving electric service from Aquila, Inc.). It is requested that funds should be used to exclusively weatherize Aquila, Inc.'s low-income natural gas heated homes.

Q. How should the program be designed?

A. This program should be designed to be consistent with federal guidelines for the federal Low-Income Weatherization Assistance Program so that federal and utility-based low-income weatherization assistance programs will complement one another to maximize benefits.

Q. Please describe the need for residential energy efficiency.

A. Investments in residential energy efficiency help to improve the efficient use of energy by consumers. Energy efficiency recognizes the truism that Missouri households do not seek to

consume energy. Instead, what they seek is to have light, hot water, refrigeration and heating and cooling. If these end uses can be delivered using less energy, the needs of Missouri consumers will have been satisfied.

U.S. Department of Housing and Urban Development (HUD) 1990 data showed that roughly one of every six Missouri units of housing that are affordable to households living above 80 percent of median income were constructed before 1940. Moreover, of the total of roughly 550,000 units affordable at that income level, nearly 90,000 have some type of "physical problem" under HUD's definitions. Finally, nearly 55,000 households living above 80 percent of median income pay more than 30 percent of their income for shelter costs, and roughly 5,000 pay more than 50 percent (Source: "Structuring a Public Purpose 'Distribution Fee' for Missouri", Fisher, Sheehan & Colton, Public Finance and General Economics consultants, July 1997.)

In its August 29, 2001, final report, the Missouri Public Service Commission's Natural Gas Commodity Price Task Force recognized the need for energy efficiency programs by its recommendation that "the (Missouri Public Service) Commission should pursue incentive measures for encouraging energy efficiency." The report included this explanation of the need for efficiency programs: "Effective energy efficiency programs can address the barriers that inhibit customers from making investments in energy efficiency improvements – lack of money or competing demand for available funds, the perception that up-front costs are more important than long-term savings and lack of technical expertise."

Q. Briefly describe the benefits of residential and commercial utility-based energy-efficiency services.

A. The Missouri Energy Policy Task Force recommended in its October 16, 2001 final report, that "Missouri pursue incentives funded through various sources to encourage the increased development of energy efficiency and renewable energy to provide for a more secure energy future." The Task Force report cited the following benefits to customers, utilities, the economy and the environment: "Missourians would benefit greatly from investments in energy efficiency and renewable resource programs. Efficiency programs provide assistance to customers by helping to reduce their energy usage and utility bills, which is particularly important when energy prices are high and volatile. System reliability and resilience are improved by reducing vulnerability to disruptions in energy supplies through efficiency and a diversified fuel mix. Long-term costs can be lowered by reducing expenditures by gas and electric utilities to upgrade their infrastructure to meet increasing demand. Investments in energy efficiency and the resulting lower energy costs coupled with the development of domestic renewable energy will improve the ability of businesses to compete, keep energy dollars closer to Missouri, increase customers' discretionary income, preserve natural resources and reduce pollution."

Well-designed energy-efficiency programs have been shown to produce substantial economic benefits for local and state economies. *The Missouri Statewide Energy Study (1992)* prepared by Missouri's Environmental Improvement and Energy Resources Authority concluded that energy efficiency would "sustain more employment opportunities than either the continued current level of energy use or the development of new energy supplies." (Source: *The Missouri Statewide Energy Study*, Volume I: Summary Report, May 1992, pg. I-33).

In addition to these benefits, state investment in energy-efficiency tends to protect households against "insurable events." In August 1996, Lawrence Berkeley Laboratory released findings showing that energy-efficiency investments in housing often lead to the correction of conditions that place buildings at risk. Such conditions include fire, carbon monoxide poisoning, and the like.

Energy-efficiency investments can also promote the affordability of homeownership in Missouri. A study by Fisher, Sheehan and Colton, Public Finance and General Economics, released in November 1996, documented how energy-efficiency investments affect the affordability of first-time home ownership. The study found that, in the Census Division of which Missouri is a part, a $3,000 energy- efficiency investment made at the time of home purchase, financed at 9 percent interest, would yield an effective reduction in the price of the home of 6 percent and an effective interest-rate discount of 0.48 percent. In other words, in order to generate the same dollar savings as the energy efficiency investment, the interest rate charge on the home mortgage would need to be reduced by 0.48 percent.

A study completed by Lawrence Berkeley Laboratories for the U.S. Department of Energy addressed the economic benefits of commercial efficiency programs. In a comprehensive review of evaluations for 40 large commercial programs that accounted for one-third of 1992 utility demand side management spending, the majority of the programs reviewed, which accounted for 88 percent of utility and consumer spending on programs included in the study, were cost-effective. For all the programs analyzed, the savings weighted average ratio of total resource benefits to total resource costs was 3.2 to 1 (Source: The Cost and Performance of the Largest Commercial Sector DSM Programs, Lawrence Berkeley National Laboratory,

December 1995). Lawrence Berkeley Laboratories found that overall, utilities demonstrated a capability to undertake highly cost-effective energy-efficiency programs.

Q. Briefly describe utility-based energy-efficiency services available today.

A. Several utilities throughout the nation continue to offer energy efficiency services and programs to their customers. These energy efficiency measures include residential and commercial energy audits, consumer education, and rebates or low-interest loans for the purchase of new products such as efficient water heaters, lights, showerheads, air conditioners, and heat pumps. Energy savings of approximately 40% can be realized through energy efficiency improvements. (Source: U.S. Department of Energy.)

Missouri energy utilities including Springfield's City Utilities, City of Independence Power & Light Department, Columbia Water and Light, Kansas City Power & Light and Missouri Gas Energy offer energy efficiency services to their customers as described above (Source: Utility Energy Efficiency and Renewable Energy Programs Survey, Missouri Department of Natural Resources, Outreach and Assistance Center, Energy Center, August 2002). Similar programs are offered by other utilities in other states, Wisconsin Public Service Corporation, Portland General Electric, and Northern State Power, to name just a few. Affiliates of Aquila, Inc. including *People's Natural Gas (Iowa), a division of Aquila Networks; Northern Minnesota Utilities and Peoples Natural Gas, divisions of Aquila Networks*, also offer such programs.

Q. What are some of the statistics related to energy efficiency investments and potential in Missouri?

A. The Alliance to Save Energy, a nationally recognized coalition of prominent business, government, environmental, and consumer leaders who promote the efficient and clean use

of energy worldwide to benefit consumers, the environment, economy and national security, issued a report in 1998 addressing energy-efficiency improvements to homes. It was found that residential energy-efficiency improvements could reduce energy consumption in Missouri by an estimated 567 billion Btu's, or the equivalent of approximately 100,000 barrels of crude oil each year. The Alliance reported that, of the 34 states studied that had not adopted the 1993 Model Energy Code, Missouri ranked 5th highest in terms of potential total energy savings and 5th highest in potential energy savings per home.

In a report to the Missouri Legislature pursuant to House Concurrent Resolution 16 titled "Economic Opportunities Through Energy Efficiency and the Energy Policy Act of 1992", Missouri specific opportunities and benefits of commercial energy efficiency programs were addressed. The report found that if Missouri had met its mandatory obligation set forth in the Energy Policy Act of 1992 (to adopt a state-wide commercial building efficiency standard by 1995), the result would have been a reduction in the cumulative consumption of energy by new commercial buildings built between 1995 and 2000 by 4 trillion BTUs, the equivalent of nearly 700,000 barrels of oil per year. The cumulative operating cost savings for Missouri commercial building owners would have been nearly $68 million by the year 2000. The report goes on to say that this potential is "dwarfed by the energy consumption of the pre-1995 standing commercial building stock." This existing commercial building stock would benefit from energy efficiency programs.

Q. Does Aquila, Inc. offer residential and commercial energy efficiency services or products to their residential or commercial natural gas customers?

A. No. Aquila, Inc. reports the company provides a limited number of energy efficiency services or products for their residential or commercial *electric* customers (Data Requests,

MDNR-8, MDNR9, MDNR-10, MDNR-11, MDNR-12, MDNR-13, MDNR-21, MDNR-22, MDNR-33, MDNR-34, MDNR-35, MDNR-36, MDNR-37, MDNR-38, MDNR-46 and MDNR-47, Mathew Daunis, Aquila, Inc., November 25, 2003; Data Requests, MDNR-33, MDNR-34, MDNR-35, MDNR-36, MDNR-37, MDNR-38, MDNR-46, MDNR-47, MDNR-61, MDNR-62, MDNR-63, MDNR-64, MDNR-65, MDNR-66, MDNR-74 and MDNR-75, ER-2004-0034, Matthew Daunis, Aquila, Inc., November 25, 2003). Aquila offers the following energy efficiency programs: Residential Financing, Residential Mail In Energy Audits, Small Commercial and Industrial Energy Audits, Large Commercial and Industrial Energy Audits, Residential Lighting Program. Aquila also reports that they have joined a utility coalition to promote energy efficiency in the Greater Kansas City marketplace through energy education, resources and actions.

Q. Do you request any changes to these programs?

A. Yes. MDNR commends Aquila, Inc. for their involvement in offering energy efficiency services. MDNR has suggestions for ways to improve participation levels in these programs, however, to make them more effective in achieving energy savings benefits for their customers.

MDNR requests that Aquila, Inc. replace its Residential Mail-In Energy Audit Program with a web-based residential energy audit program. The web-based energy audit program should be available to both MPS and L&P natural gas residential customers. Aquila, Inc. began implementation of the mail-in energy audit program (electric only) on April 1, 1999. From inception through May 2003, Aquila, Inc. reports there have been 10,840 requests for audit services and only 4,447 audits, 41 percent, have been completed and returned to customers. Upon receipt of the audit form, MPS combines the survey results with the customer's billing

data to generate an audit report to send to the customer. The report provides an estimate of energy usage by appliance and end-use and a list and description of energy efficiency measures that are relevant to the customer's home. To be able to meet their residential customers' requests for energy audits and to provide this service to both MPS and L&P residential customers, MDNR requests that Aquila develop and implement a web-based residential energy audit that links to a customer's billing data to quickly and accurately provide energy-saving recommendations and information. This would reduce the staff time to manually complete the energy audits that are now done by Aquila for its MPS customers (Data Request, No. MDNR-33, ER-2004-0034, Attachment: Demand Side Analysis Report dated November 26, 2002, Matthew E. Daunis, November 30, 2003).

A similar program is under development by AmerenUE as part of the Residential and Commercial Energy Efficiency Collaborative established in the Stipulation and Agreement in Case No. EC-2002-1. Based on the projected cost to implement this online residential energy audit program, MDNR requests that $250,000 in one-time costs and $125,000 in annual costs be allocated to develop and implement this program. This online audit program can serve both Aquila – MPS and Aquila – L&P gas and *electric* customers because energy efficiency measures identified in the audit will relate to both electric and gas measures. As a result, the cost to establish this program could be allocated among Aquila – MPS and Aquila – L&P *electric and gas* customers. The cost allocation could be based on the number of customers in each service territory. The MDNR has included a similar proposal in the Aquila, Inc. electric rate case, ER-2004-0034.

Q. Do you request other changes to Aquila's energy efficiency programs?

A. Yes. In addition to implementing an online residential energy audit program and offering this service to both Aquila Networks – MPS and Aquila Networks – L&P customers, MDNR requests that the Small Commercial and Industrial Energy Audit Program also be offered to L&P customers, to include both electric and natural gas customers. This audit program is currently offered to MPS customers only. (Data Request, MDNR-46, Mathew Daunis, Aquila, Inc., November 25, 2003). The program should be structured to provide incentives for commercial customers to implement the energy efficiency measures identified in the energy audit. A similar program is being implemented by AmerenUE as part of the Residential and Commercial Energy Efficiency Collaborative established in the Stipulation and Agreement in Case No. EC-2002-1. MDNR requests $50,000 annually to make this program available to both MPS and L&P commercial customers (including natural gas and electric commercial customers) and to include incentives to encourage implementation of energy efficiency measures identified in the energy audit.

This program can serve both MPS and L&P gas and *electric* customers because energy efficiency measures identified in the audit will relate to both electric and gas measures. As a result, the cost to establish this program could be allocated among Aquila – MPS and Aquila – L&P *electric and gas* customers. The cost allocation could be based on the number of customers in each service territory.

Based on the number of customers served by Aquila, Inc., participation rates are low for many of these programs. MDNR also requests that the current programs be marketed more extensively to increase customer participation.

Q. What funding level would be required to adequately support energy efficiency programs for Aquila, Inc.'s residential and commercial electric customers presented by your testimony?

A. As noted earlier in my testimony, Aquila, Inc. is targeting the largest proportion of this rate increase to its residential and small commercial electric customers. In order to help Aquila, Inc.'s residential and commercial natural gas customers face these rising energy costs, they should be offered the opportunity to improve the way they use energy and help to reduce their energy expense.

In total, Aquila, Inc. currently serves approximately 52,277 natural gas customers that include 45,977 residential customers and about 6,228 small commercial customers.

Aquila Networks – MPS currently provides natural gas service to approximately 46,146 customers; approximately 40,693 are residential customers and 5,405 are general service customers that include small commercial.

Aquila Networks – L&P serves approximately 6,131 natural gas customers; approximately 5,284 are residential customers and 823 are general service customers that include small commercial.

The MDNR requests that Aquila, Inc. implement the proposed residential and commercial energy efficiency programs annually as follows:

Low-Income Residential Weatherization Assistance

Annually fund through rates, $151,200 to implement low-income residential weatherization assistance consistent with federal weatherization guidelines through local community action agencies operating within Aquila, Inc.'s natural gas service territory. Presuming an average savings to investment ratio of 1:2.5 (the average savings to investment ratio for the weatherization assistance programs administered by AmerenUE and MGE (3.37 + 1.62 / 2 = 2.5)), Aquila, Inc. low-income natural gas households could realize a net benefit of $378,000

per year or $7.56 million dollars over the life of this investment ($151,200 x 2.50 x 20 years = $7,560,000).

Residential Energy Efficiency

Fund through rates $250,000 in one-time costs and $125,000 in annual costs for an online residential energy audit for Aquila Networks – MPS and Aquila Networks – L&P electric and natural gas customers. This is a similar proposal offered through my direct testimony in Aquila, Inc. electric rate case ER-2004-0034 and is not intended to be duplicate funding. Costs would be allocated based on the proportional number of electric and natural gas customers.

Commercial Energy Efficiency

Fund through rates $50,000 in annual costs for a commercial energy audit program with incentives for implementation of energy efficiency measures. This is a similar proposal offered through my direct testimony in Aquila, Inc. electric rate case ER-2004-0034 and is not intended to be duplicate funding. Costs would be allocated based on the proportional number of electric and natural gas customers.

Q. *Please explain the estimated cost per natural gas customer to implement these energy efficiency programs.*

A. First year costs related to the proposed energy efficiency programs total $576,200:

The costs are presented by program and by yearly and monthly costs for natural gas and electric customers.

Proposed Program	Funding Amount	Yearly	Monthly	Customer
• Weatherization Assistance	$151,200 annual	$2.89	$0.24	Gas
• Residential Efficiency	$250,000 one-time*	$1.12*	$0.09*	Gas/Elec.

		$125,000 annual*			
• Commercial Efficiency		$ 50,000 annual	$0.15	$0.01	Gas/Elec.
Total		$576,200	$4.16	$0.34	

*The cost of the residential efficiency proposal ($250,000 and $125,000 have been combined and allocated at a rate of 15.6%, based on the proportional share between the number of Aquila, Inc. electric and gas customers)

These efficiency programs are intended to serve both natural gas and electric customers. By allocating these costs on a proportional basis between Aquila, Inc. electric and gas customers, the first-year cost to natural gas customers to implement these programs would be approximately **$217,500** (Weatherization Assistance - $151,200 x 100% = $151,200; Residential Efficiency - $375,000 x .156 = $58,500; Commercial Efficiency - $50,000 x .156 = $7,800 for a total first year cost of $217,500). Based on allocation, the cost to an Aquila gas customer would be estimated at $4.16 per year or $0.34 per month.

Aquila, Inc. serves approximately 334,477 customers; 282,200 electric customers (84.3%) and approximately 52,277 natural gas customers (15.6%). The percentage allocation is 99.9 percent due to rounding.

After the first year, the total cost to implement these programs is estimated at $326,200 per year or **$178,500** for natural gas customers. Based on allocation, the estimated cost per natural gas customer is estimated at $3.41 per year or $0.28 per month:

Proposed Program	Funding Amount	Yearly	Monthly	Customer
• Weatherization Assistance	$151,200 annual	$2.89	$0.24	Gas
• Residential Efficiency	$125,000 annual	$0.37	$0.03	Gas/Elec.
• Commercial Efficiency	$ 50,000 annual	$0.149	$0.01	Gas/Elec.

Total		$326,200 annual	$3.41	$0.28

Following the first year, the MDNR requests annual funding in the amount of $178,500 to support Weatherization Assistance ($151,200 – 100 percent from natural gas rates), Residential Efficiency ($19,500 – 15.6 percent from natural gas rates) and Commercial Efficiency ($7,800 – 15.6 percent from natural gas rates) until the company's next rate filing. In order to prevent any further contribution to increased natural gas rates for customers served by Aquila Inc., the MDNR requests a reduction in Aquila, Inc.'s natural gas rate filing by a total of no less than $931,500 over a five-year period, to support the proposed energy efficiency programs for a period of no less than five years through natural gas rates (Yr. 1 $217,500 + Yr. 2 $178,500 + Yr. 3 $178,500+ Yr. 4 $178,500 = Yr. 5 $178,500 = $931,500)

Q. Does this conclude your testimony?

A. Yes. Thank you.