Approved: ______________________________
Date

MINUTES OF THE SENATE UTILITIES COMMITTEE

The meeting was called to order by Chairperson Sen. Pat Ranson at 1:30 p.m. on February 16, 1999 in Room 531-N of the Capitol.

All members were present except:
Sen. Hensley was excused

Committee staff present:
Lynne Holt, Legislative Research Department
Mary Torrence, Revisors of Statutes Office
Jeanne Eudaley, Committee Secretary

Conferees appearing before the committee:
Peter Beren, Director, Regulatory Affairs, Mountain Energy
Pat Parke, Vice-President of Marketing and Rates, Midwest Energy, Inc.
Jim Bartling, Mgr., Public Affairs, United Cities, A division of Atmos Energy
J. C. Long, Government Affairs, UtiliCorp United
Walker Hendrix, Consumer Counsel, Citizen's Utilities Ratepayers Board
David Dittemore, Director of Utilities, Kansas Corporation Commission

Others attending:
See attached list

Sen. Ranson introduced pages, who are assisting the committee today; they are from Sen. Barone's district. She announced there will be no meeting Friday, but that the committee will meet on Monday and Tuesday - the Majority Leader has moved the Senate session on Tuesday to 2:30 instead of 1:30.

Sen. Ranson asked the committee to look over the Minutes of the Meeting for February 4 and 9. Sen. Jones made a motion the Minutes be approved, and it was seconded by Sen. Clark; the Minutes were approved.

Sen. Ranson opened the hearing for **SB 217-concerning natural gas service; providing for competition in retail sales.** The following appeared to give information related to the bill:

Peter Beren, (Attachment 1)
Pat Parke, (Attachment 2)
James Bartling, (Attachment 3)
J. C. Long, (Attachment 4)
Walker Hendrix, (Attachment 5)
David Dittemore, (Attachment 6)

All of the conferees stated their support of the bill, and several outlined proposed changes in the language of the bill. Mr. Parke outlined changes on Page 1 of his testimony, and Mr. Bartling outlined points that he believes should be in a customer choice program. Mr. Long stated his support for opting in the municipals, and Mr. Hendrix explained why he believes the bill poses difficulties for residential and small commercial customers and outlined recommended amendments to the bill. Mr. Dittemore stated the Commission's support of the bill, but pointed out minor revisions that will allow the Commission more flexibility with a customer choice program.

The committee discussed the bill, and Sen. Ranson asked Mr. Dittemore if it would be advisable to require the Commission to report on the status of the customer choice program. Sen. Barone stated requiring it by statute would help the Commission gather data and report on its progress. Ms. Holt commented on the many annual reports she receives and suggested an option would be that a report on the progress of customer choice be included as a part of the Corporation Commission's Annual Report to the Legislature. Sen. Ranson asked Ms. Torrence to come up with language regarding the reporting question.

CONTINUATION SHEET

MINUTES OF THE SENATE UTILITIES COMMITTEE, Room 531-N Statehouse, at 1:30 p.m. on February 16, 1999.

Sen.Jones referred to Lines 30 and 31 of the bill and asked if after July 1, 2002, he would be bombarded with marketers, as he is now with phone service and cable companies. He asked if he would be "locked in" to his suppler. Mr. Dittemore answered that he probably would. Sen. Jones also questioned if he chose to change suppliers, how often could he do that? Mr. Beren stated it would depend upon the Local Distribution Company (LDC) and the programs being offered to customers; he also stated that the supplier is renting space on lines and they would be competing for customers' business. The committee discussed customer choice programs in Nebraska and Iowa, where it has been established by Commission Order. Sen. Jones also asked if the meters would have to be replaced, if another supplier were chosen. Mr. Beren stated their large commercial and industrial customers receive two bills - one from Mountain Energy for the gas supply and one bill from the local utility for distribution charges; he further stated that it will be a problem sending only one bill, under the customer choice proposal. Sen. Ranson reminded the committee that the distribution part of the program will be regulated.

Sen. Salisbury asked who requested the bill, and Sen. Ranson stated it is a committee bill; that it is identical to a bill which has been in the House for two or three years. Sen. Pugh then discussed the competition aspect of the program and the possibility of an increase in the rates/tariffs, if this program is put into place. Sen. Brownlee stated the tax issues need to be resolved, and Mr. Hendrix stated the language in the bill is inconsistent and confusing regarding taxes; that people need to be aware and understand the tax component. Mr. Dittemore stated the Commission should conduct oversight over the marketers and there are issues which need to be resolved, including the tax question. Sen. Ranson referred to questions raised earlier regarding transportation, and stated there are areas which need clarification and asked Ms. Torrence to draft amendments for the bill. She announced the hearing will be continued tomorrow.

Sen. Ranson announced Ms. Holt has provided the committee with a thermal conversion chart, which has been distributed to the committee (Attachment 7).

Meeting adjourned at 2:30.

Next meeting will be February 17

SENATE UTILITIES COMMITTEE GUEST LIST

DATE: Feb. 16, 1999

NAME	REPRESENTING
Jim Bartling	Greeley Gas Co / United Cities Gas Co
Burton Crawford	KCPL
Chris Giles	KCPL
Louis Stroup Jr.	KS Municipal Utilities
J.C. Long	UCU
Peter Beren	MTN. Energy
Amy A. Campbell	Midwest Energy
Steve Johnson	Kansas Gas Service
Pat Parke	Midwest Energy Inc.
Charles Reese	Midwest Energy, Inc.
Dave Dittemore	KCC
Don L. Miles	KEC
Ed Schaub	Western Resources
~~Dick Carter~~	ENRON
Bob Alderson	Atmos Energy Corp.
Joe Dick	KCKBPU
Whitney Damron	KS Gas Service
Eldridge Luber	ONEOK / Kansas Gas Service
Kim Gulley	LKM

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Natural Gas Unbundling – A Marketers' Perspective
by
Peter H. Beren, Director
Business Development &
Regulatory Affairs
MOUNTAIN ENERGY CORPORATION

Competition in the marketplace today: On any given day there are at least eight natural gas marketing companies competing for large commercial and industrial load in Kansas. These include MOUNTAIN ENERGY, Kansas Gas Marketing (the affiliate of Kansas Gas Service), Utilicorp's marketing affiliate, Williams Energy Services (the affiliate of Williams Natural Gas), Ensearch (the affiliate of Ensearch/Texas Utilities out of Dallas), Margasco (the affiliate of Kansas Pipeline), Continental Natural Gas (the affiliate of Consumers Energy out of Michigan), KN Energy's marketing affiliate, Woodward Marketing (the affiliate of United Cities), and PGE Energy Services (the affiliate of PG&E out of California), to name a few. With the exception of MOUNTAIN ENERGY, all of these companies are owned by regulated utilities or pipelines. MOUNTAIN ENERGY is an independent marketing company beholding only to our customers. Our sole business is the buying, transporting, and selling of natural gas.

Yet, MOUNTAIN ENERGY has over 500 end users in the state of Kansas under contract. We do this by utilizing aggressive marketing, and by providing competitive prices, flexible pricing, regulatory intervention, better billing, and personal service.

What does MOUNTAIN ENERGY do: MOUNTAIN ENERGY is an aggregator of gas supply and transportation. We purchase natural gas as needed on the spot market under agreements that may be a year in length, a month or even a day, depending upon the anticipated demands of our customers and the weather. This gas is transported on the existing pipelines utilizing firm and released firm transportation services. Rarely do we utilize interruptible transportation service. We redeliver this gas to the end user's account on the various LDCs in Kansas. We provide the

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customer with one stop shopping for their gas supply, their transportation service, their storage, peak day demands, balancing services, needed to successfully flow gas into their LDCs facilities.

MOUNTAIN ENERGY typically offers two types of gas supply contracts, Fixed or Index prices. Fixed pricing is just that, a fixed price for the term of the agreement. An Index price is a variable that moves up a down depending on the market place. A history of the Williams Index is attached for you review. The Index prices shown are the wholesale prices for gas its self, transportation, our margin and the LDC charges are additional. Other types of contract that are hybrids of these two types of agreements are also available, depending on the customers needs and financial goals.

Economic impact of this bill: Assuming approximately 800,000 customer in Kansas that will be effected by this bill, utilizing KGS cost of gas and William firm transportation, Kansas could ultimately save in excess of $29 million per year.

MOUNTAIN ENERGY's position on SB 217: MOUNTAIN ENERGY is primarily interested in the small, general service commercial accounts, not the residential business. This does not mean that we are not interested in serving residential customers, we are wary of the cost and the ability to properly administer this class of customer. We will reserve our opinion until we have the opportunity to see how each individual LDC handles this business.

Anyone's ability to successfully serve the residential customer depends upon the general terms and conditions of each LDCs tariff. Non-tariff policies and practices of each LDC also way heavily into this formula. Tariffs, as well as operating procedures, vary significantly from LDC to LDC.

One can design their tariffs and procedures to facilitate transportation or to hinder transportation. One can make their tariffs, policies & procedures, and the ability to do business behind their LDC as easy or as difficult as one wants.

Kansas Gas Service handles everything up front with three of four key people handling the entire process. There isn't a marketer around who does not serve customers behind KGS. On others, that number of marketers and competition is substantially diminished with the requirement of onerous performance bonds, assignment of firm transportation to the new transportation customer, and the inclusion of transition costs that make transportation uneconomical for small customers.

On LDCs who require these items, the number of marketers and competitors drops to only two or three companies, with one of those competitors being their marketing affiliate. Similarly, those LDC requiring these hoops to jump through, make it exponentially harder to do business on their system by not having centralized contacts. These companies seem to delight in ambiguous tariffs (where everyone has different opinions of the language contained in the tariff) and the ability to confuse the marketer with numerous contacts required in order to start up a new transport customer. These same LDCs spread out the responsibility for various functions among as many people as possible, making it ever harder to accomplish the transportation function. In doing so, such LDCs, leave it up to the Marketer to find his own way through their maize. Then when problems occur, the LDC blames the Marketer for not having read the tariff or not having filled out some piece of paperwork that is needed for some particular person at the LDC to effect transportation.

For this bill to provide service and savings all of the LDCs will have to implement transportation service centers that will coordinate the entire transportation function.

The LDCs as a gas provider: For this bill to work properly, to reduce the amount of confusion in the public's eye, and to provide the service that the public expects, it is imperative that the LDC remain in the sales function. Unlike FERC's Order 636 where the pipelines exited the marketing function, thus becoming a freight hauler only. Companies like MOUNTAIN ENERGY who operate on the interstate pipelines, have substantial staffs to navigate the tariffs and procedures of the pipeline. The average homeowner does not have the knowledge and background to properly evaluate supply opportunities. Not that natural gas supply is complicated, it is just plain confusing to the uninitiated. Throwing the LDC out of the sales function, will cause substantial headaches for the consumer, the LDC, the Marketer, the KCC, and even this committee.

MOUNTAIN ENERGY, the lone voice for choice: Since 1986, MOUNTAIN ENERGY, and its predecessor Mountain Iron, have been the lone voices for choice. MOUNTAIN ENERGY has a long history of participation in the regulatory process. This participation has always been geared toward the opening up of more end users to the transport process. This legislation is an important step for the economy of Kansas, but the road to unbundling is full of potholes. Properly crafted rules, regulations, and tariffs, and the LDCs ability to administer this type of business is imperative for the smooth transition to an open market.

Lastly, just because the public will have access to the open natural gas market, not one additional Mcf or Dekatherm of natural gas will be used simply because it is cheaper. Economic growth and the weather are the largest factors in natural gas usage. While we cannot do anything about the weather, this bill will have long term economic impact on the ratepayers of Kansas.

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SENATE BILL NO. 217
Providing for Competition in Retail Sales of Natural Gas

Presented To

Kansas Senate Committee on Utilities

February 16, 1999

Comments By

Mr. Pat Parke

Vice President of Marketing and Rates

Midwest Energy, Inc.
www.mwenergy.com

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Comments Specific to Senate Bill No. 217

1. Midwest Energy supports this bill and suggests only the minor changes outlined below.

2. The definition of "transportation" in Section 1, Paragraph (a) (5) specifically and correctly excludes the delivery of natural gas to retail customers. We suggest similarly specific inclusive language for the definition of "distribution facility" by appending the words *"... to retail customers"* to the end of Paragraph (a) (3) on Line 18.

3. We suggest including a definition for the term "retail customer". For example, *"Retail customer" means the end user of the delivered natural gas.*

4. Section 1, Paragraph (b) mandates natural gas customer choice on and after July 1, 2002. Midwest Energy does not oppose that date for statewide implementation. However, with Commission approval Midwest Energy will offer gas choice prior to July 1, 2002, and perhaps as early as October 2000. Midwest Energy sees nothing in the proposed bill that precludes an earlier start. We will oppose any attempt to prevent an earlier gas choice plan on a utility specific basis or as a pilot project. In fact, one or more pilot projects may be useful to the Commission as it develops a statewide plan.

5. Section 1, Paragraph (c) appears to prevent the existing distribution utility from selling natural gas at retail. This prohibition does not change our overall support of the bill. However, at least during some early transition years it may be unpopular to force customers to choose an alternate supplier if they want to buy gas from their traditional utility. Allowing customers to choose the existing utility could hasten widespread acceptance of choice by giving the more cautious customers a degree of comfort until they see that choice can provide benefits.

   For the last 10-15 years, the largest industrial customers have been able to take transportation service on a voluntary basis. Why should we mandate that every residential customer chooses an alternate supplier from the very beginning?

6. Section 1, Paragraph (d) (1) includes the phrase *"...subject to regulation..."* on Line 37. It is not clear if this means regulation by the Kansas Corporation Commission, the Federal Energy Regulatory Commission, or both.

7. In conclusion, Midwest Energy supports this bill. Attached to this outline is a summary of some issues relevant to natural gas customer choice on Midwest Energy's distribution system. These were already discussed before this Committee on February 4.

Customer Choice Issues on the Midwest Energy System

Supply Issues

- Midwest Energy's existing long-term gas supply contracts expire in September 2000.
- Mechanisms are in place to recover gas supply restructuring (GSR) costs that resulted from contract reformation following FERC Order 636.
- Customers moving from sales to transportation service share a portion of the GSR recovery.
- Nothing on the supply side prevents us from allowing all customers to transport gas beginning in October 2000.

Interstate Capacity Issues

- Midwest holds firm upstream capacity, primarily on KN Interstate, for its sales customers.
- Midwest does not provide upstream capacity for current transportation customers.
- Residential and small commercial customers should be served only with firm upstream capacity, even if they are allowed to choose their commodity supplier.
- The local distribution utility (LDC) should hold the firm upstream pipeline capacity and temporarily release it to the customer's chosen shipper.
- Pipeline capacity costs should follow the departing customers to ensure remaining residential and small commercial customers do not bear the costs of stranded pipeline capacity if others switch to transportation.

Internal Systems

- Gas choice for all customers requires a totally electronic nomination and scheduling system.
- Midwest Energy needs about two years to prepare systems and install computer interfaces.
- Electronic flow measurement (EFM) or calculated peak day gas consumption is required to ensure that marketers inject enough gas on peak days. (This prevents remaining sales customers from subsidizing imbalance charges.)
- Safety practices for restoring service must be addressed as more customers take deliveries with interruptible capacity. Who verifies valve status on the premises before restoring service?

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BEFORE THE
KANSAS SENATE COMMITTEE ON UTILITIES

PREPARED TESTIMONY OF
JAMES W. BARTLING

ON BEHALF OF
ATMOS ENERGY CORPORATION

FEBRUARY 16, 1999

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TESTIMONY ON BEHALF OF ATMOS ENERGY CORPORATION IN SUPPORT OF SENATE BILL NO. 217

My name is Jim Bartling and I am appearing on behalf of Greeley Gas Company ("Greeley") and United Cities Gas Company ("United"), Divisions of Atmos Energy Corporation (Atmos). Atmos greatly appreciates the opportunity to speak to the committee regarding SB 217. Throughout Kansas, Greeley and United, provide local distribution service to over 100,000 natural gas customers. With some exceptions, primarily in Johnson County, Wyandotte County, and Montgomery County, our service territories are widely distributed in what are typically called rural areas.

Atmos has participated in "customer choice", sometimes referred to as "unbundling", initiatives in Georgia, Iowa, Missouri, Kentucky, Colorado, Illinois, and Kansas over the past three years. In fact Atmos attended the Kansas Corporation Commission's ("KCC") natural gas industry unbundling workshop in October 1996, and plans to participate vigorously in the recently issued KCC inquiry regarding retail choice and/or alternative regulatory measures.

In each of our discussions in the states mentioned above, Atmos has supported the concept of dual oversight. We believe that a combination of enabling statutory language through legislation and a collaborative rulemaking process sponsored by the public utility regulator (the KCC) is the most effective way to ensure that all stakeholders have the opportunity for input and due process. We applaud the authors of SB 217 in their endeavor to leave the details of how to proceed with "customer choice" to the collective wisdom of those that are directly and significantly impacted by this complex change in policy.

Atmos believes a customer choice program should contain at least the following points:

1. the program should be customer driven, with clearly demonstrable benefits as opposed to hypothetical benefits;
2. stranded cost recovery, affiliate transaction guidelines, and supplier of last resort duties must be treated fairly with regard to the utilities' customers and shareholders;
3. inherent differences between natural gas and electricity supply storage and aggregation must be recognized;

4. the natural gas utility system must not be compromised with regard to safety and delivery reliability;
5. fair compensation must be provided for peak day and other balancing services provided by the utility;
6. equal standards for equal duties must be imposed among participants (e.g. tax equity between regulated and unregulated; and the ability of utility affiliates to compete on an equal basis with third party providers of unregulated products and services);
7. utilities should have the option to retain nondelivery services (metering, billing, meter reading, information services);
8. under any "customer choice" scenario, utilities should be permitted to deduct the "avoided costs" rather than the "average costs" of nondelivery services from its rate structure; and
9. "customer choice" should be sufficiently flexible to permit alternatives such as (a) aggregation by third party suppliers for residential customers and (b) the

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use of performance based regulation (PBR) to permit an equitable sharing of benefits from efficient management of utility services.

Atmos believes that consumer education is the key to success for "customer choice" programs. As this legislation goes forward and becomes the law in Kansas, regardless of the final wording, consumer education should be first on the "issues to be resolved list". While we support the general philosophy of SB 217, as it is written today, it does not give the KCC the maximum flexibility we think is necessary to provide customers with tangible benefits. Any "customer choice" program must be flexible so that it provides customer satisfaction and adequate incentives to utilities and other service providers. In fact, we believe that PBR may be a better way to deliver reduced costs to more customers than "customer choice" programs. Each "customer choice" program is different because each utility is substantially different. We would caution that what works in one part of Kansas may not work in another. That is why Atmos supports the use of pilot programs and recommends that the substance and details of each customer choice be left to the expertise and informed judgment of the affected stakeholders. As mentioned earlier, and as contemplated by the KCC, a collaborative approach should be taken to explore the details and substance of each program prior to its approval or disapproval. Atmos thanks you for your time and applauds you for your efforts. I will be happy to answer any questions at this time.

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Senate Utilities Committee

Testimony in Favor of SB 217
by
J. C. Long, Director
Government Affairs
UtiliCorp United Inc.

Senator Ranson and members of the committee:

My name is J. C. Long, and I am Director of Government Affairs for UtiliCorp United in Colorado and Kansas. UtiliCorp owns and operates two natural gas utilities in Kansas, Peoples Natural Gas and Kansas Public Service. Together, these utilities serve 105,000 customers. I appear before you today to testifying in favor of Senate Bill 217 that would require natural gas competition by local distribution companies (LDC's) on or after July 1, 2002.

In our review of Senate Bill 217 and other gas competition bills in other states in which we do business, this bill is by far the most concise. That may be an advantage or a disadvantage depending on your point of view; however it is our experience that in most states that go down this road towards competition, Legislators of these states have included many more details in their proposals than SB 217. It has also been our experience in these states that what the Commission or regulatory agency, requests of us, the local distribution company, may or may not be exactly what this Legislature may want. Therefore, we would suggest some periodic oversight language to be included in this bill, for example, an annual progress report to Legislature by the Commission. We believe this

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report would keep the process moving along and would also provide legislators insights to problems that may occur during the drive towards open competition.

We also believe that all natural gas utilities, no matter whether public or municipally owned, should be included in the provisions of SB 217. But because this lacks the municipalities support, we believe that an opt in provision for municipal systems should be included in this bill. By including this provision, the municipals will have the opportunity to enter into the competitive market place upon their own initiative without further legislative activity.

Thank you for the opportunity to appear before you today. Steve Jurek, Vice-President of Regulatory Affairs for UtiliCorp is also here today and we would be happy to answer any questions you may have.

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SENATE UTILITIES COMMITTEE

S.B. 217

CITIZENS' UTILITY RATEPAYER BOARD

by Walker Hendrix

Senate Bill 217 appears to be a broad proposal directing the KCC to develop and implement a plan to allow *all* customers to select a retail supplier for natural gas on or after July 1, 2002. The bill also appears to amend the definition of a "public utility" to exclude sale of natural gas at retail and to provide more favorable tax relief for non-regulated natural gas facilities.

From my perspective, there appears to be some errors in draftsmanship in the bill. It could be that I am providing too narrow a reading of the bill. However, several points need clarification. The bill would seem to deregulate most natural gas service. It amends the definition of a public utility to exclude the sale of natural gas at retail. Under current conditions, all sales of natural gas by a gas distribution public utility are sales at retail. Because the bill presumes that natural gas public utility property will still be regulated if included in rate base, the bill seems to use terminology inconsistently, unless I am missing the point. Reference is also made to transportation facilities as being equipment under the jurisdiction of the FERC, when gas distribution equipment also is capable of providing transportation service over a distribution system and is not subject to FERC jurisdiction. Another confusing thing about the bill is the provision for deregulating property no included within a public utility rate base. Presumably, this is designed to exclude equipment used in the sale of natural gas at retail, which would be the entire distribution network. Because a natural gas distribution system may be used both for retail sales and transportation, it is difficult to segregate property for tax purposes, once again assuming I understand what the intent of the bill is.

Having a difficult time tracking the bill with existing statutory language and practice, I will attempt to explain why the bill poses some difficulties for residential and small commercial customers. If the intent of the bill is to permit all customers to arrange for transportation service 5

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and to directly contract for natural gas supplies in order to bypass the distribution system's merchant functions, the bill only presents an opportunity for residential customers who can arrange for gas supply. Because residential and small commercial customers require relatively small amounts of natural gas and consume most of their supplies at peak periods, they are not the most desirable load to serve from a marketing point of view. Despite the freedom expressly provided in the bill, I suspect that many residential and small commercial customers will not be afforded the opportunity to elect to have transportation service and will not be able to arrange for their own gas supplies.

Unless some accommodation is reached with the local distribution company, it may be difficult to arrange upstream capacity at attractive or discounted rates to permit the transportation of natural gas from distant locations. Large customers, including the local distribution company, can negotiate for upstream capacity at favorable rates. Because of the consumption patterns of residential and small commercial customers, it would probably be impractical for them to access transportation service. Metering expenditures may also create some barriers for residential and small commercial customers.

As more and more customers, who are able to arrange for gas transportation, do so, residential customers bear a larger portion of the distribution company's historical costs. The distribution companies have entered into long term supply contracts and firm up-stream transportation from interstate pipelines. When these contracts were executed, the sales of the distribution company were much larger and transportation was not a common situation. As more and more customers are leaving the merchant function of the local distribution company, the excess supply and capacity are recovered from a dwindling profile of customers, most of which are residential and small commercials. These supply contracts and transportation arrangements are considered stranded. At the federal level, these kinds of costs were borne by both customers and shareholders. Consequently, some protection needs to be afforded residential and small commercial customers, so they are no left having to bear all the stranded costs of the distribution public utility.

With these comments, I conclude and would stand for questions. Thank you for your attention.

Testimony Before the Senate Utilities Committee on SB 217
by David N. Dittemore, Director of Utilities
On Behalf of the Kansas Corporation Commission Staff
February 16, 1999

Senate Bill 217, as offered, will significantly alter the retail natural gas business in Kansas. Conceptually, the KCC supports customer choice. With revolutionary changes upon us in telephone, electric, and gas in such a short time period, the Commission suggests that the Senate consider several minor revisions to the bill that will provide the Commission a little flexibility in the timing and specification of the customer choice program.

The first item for consideration is the definition of a "natural gas public utility" on lines 31-33. It appears that this definition would prohibit the local distribution company from continuing to offer a fully bundled service for customers who prefer not to participate in the "customer choice" program. If that prohibition is not intended as part of the definition, then clarification would be appreciated.

The second item for consideration is on line 28 where it states that, "... a plan to allow all ..." The inclusion of the word all could prevent the Commission from extending a pilot program past that date without a statutory amendment, even if operational problems developed that would require additional time to resolve. Having that flexibility, while understanding the legislative intent, could be beneficial to the Commission and the public.

The Commission appreciates this opportunity to participate in the legislative process.

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FROM LYNNE

KANSAS GAS SERVICE

A DIVISION OF ONEOK

1 CF (Cubic Feet)	= Approx. 1,000 BTUs
1 CCF	= 100 CF = 1 Therm
1 Therm	= 100,000 BTUs = 100 CF = 0.1 MCF
10 Therms	= 1 MCF
1 MCF	= 1,000 CF = 10 CCF = 10 Therms
1 BCF	= 10^6 MCF = 10^7 Therms = 10^12 BTUs
1 TCF (Quad)	= 10^9 MCF = 10^10 Therms = 10^15 BTUs

COMPARITIVE THERMAL VALUES	1.00 million Btu	24.0 million Btu	0.0916 million Btu	0.125 million Btu	0.139 million Btu	0.150 million Btu	0.003412 million Btu
Natural Gas 1,000 BTU/cu ft	1,000 cu ft	24,000 cu ft	91.600 cu ft	125.000 cu ft	139.000 cu ft	150.000 cu ft	3.412 cu ft
Coal 12,000 BTU/lb	83.333 lb	2,000 lb	7.633 lb	10.417 lb	11.583 lb	12.500 lb	0.284 lb
Propane 91,600 BTU/gal	10.917 gal	262.009 gal	1 gal	1.365 gal	1.517 gal	1.638 gal	0.0373 gal
Gasoline 125,000 BTU/gal	8.000 gal	192.000 gal	0.733 gal	1 gal	1.112 gal	1.200 gal	0.027 gal
Fuel Oil #2 139,000 BTU/gal	7.194 gal	172.662 gal	0.659 gal	0.899 gal	1 gal	1.079 gal	0.0245 gal
Fuel Oil #6 150,000 BTU/gal	6.666 gal	160.000 gal	0.611 gal	0.833 gal	0.927 gal	1 gal	0.0227 gal
Electricity 3,412 BTU/kWh	293.083 kWh	7,033,998 kWh	26.846 kWh	36.635 kWh	40.739 kWh	43.962 kWh	1 kWh

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Attach. 7

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