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February 17, 2009

Mr. Steve Reed, Secretary
Missouri Public Service Commission
P.O. Box 360
Jefferson City, MO 65102

Re: Chairman's Report on Natural Gas Pipeline Capacity

Dear Mr. Reed:

Pursuant to §386.130, RSMo, I tender herewith a Chairman's Report on Natural Gas Pipeline Capacity.

The Report is intended to be a tool for policy makers and lay-parties interested in the subject matter. The focus of the report was to investigate and identify any and all problems affecting natural gas capacity in Missouri, specifically including the ability of Missouri Local Distribution Companies to deliver adequate gas capacity in certain regions of the state due to constraints on interstate pipelines and/or LDC systems. Further, this report raises concerns regarding how such constraints might be affecting economic development, particularly in rural areas of the state.

I would like to recognize several Staff members who have exceeded my expectations in their dedication and commitment to Missouri ratepayers. Many thanks go to Ben Lane, Janis Fischer, Lera Shemwell and Richard Moore in compiling the Report.

Very truly yours,

A handwritten signature in black ink, reading "Robert M. Clayton III".

Robert M. Clayton III
Chairman

cc: Members of the Commission

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of Natural Gas Capacity)
Restrictions on Transmission and)
Distribution Systems and Collateral)
Issues)

Case No. GW-2007-0397

**Chairman's Report
on Natural Gas
Pipeline Capacity**

by

**Chairman Robert M. Clayton III
Missouri Public Service Commission**

February 17, 2010

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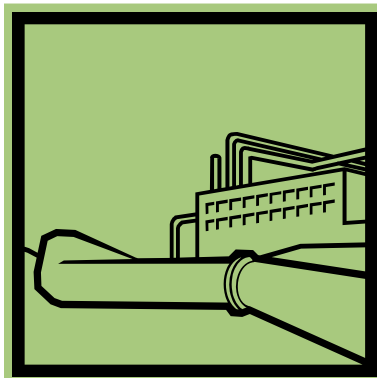


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Gas Capacity Report

This Commissioner and former Commissioner Gaw¹ opened Case No. GW-2007-0397 on April 13, 2007, as a vehicle to investigate and identify any and all problems affecting natural gas capacity in Missouri. The concern about adequate gas capacity arose as a result of a recent AmerenUE gas rate case (Case No. GR-2007-0003), in which AmerenUE requested a change in its tariff that would grant the company the discretion to reject gas service applications from customers with certain large energy requirements. In that case, questions were raised about the ability of Missouri Local Distribution Companies (“LDCs”) to deliver adequate gas capacity in certain regions of the state due to constraints on interstate pipelines and/or LDC systems. This led to concerns regarding how such constraints might be affecting economic development, particularly in rural areas of the state.

Additionally, constraints in capacity on interstate pipelines and/or LDC systems were clearly identified when various ethanol manufacturing projects were proposed for the region. Lack of capacity for natural gas service proved an insurmountable barrier for economic development regarding the proposed ethanol manufacturing plants.

This report is intended to be a tool for policy makers and lay-parties interested in the subject matter, rather than an article directed at those within the utility industry. Thus, I have attempted to provide a great deal of context and foundational information to educate the reader.

¹ Commissioner Steve Gaw was appointed to the PSC in March 2001 and his term concluded in September 2007 upon appointment of his successor.

Introduction

While this Commissioner has long been concerned about the availability of natural gas transportation capacity sufficient to serve all Missouri customers desiring gas service, the development and needs of ethanol plants in Missouri brought to the forefront new capacity issues. In particular, the large quantity of natural gas required to operate an ethanol plant and the increasing importance of these facilities in Missouri raised additional questions about the capacity of existing infrastructure to meet increased demand. In 2007, several companies, including Mississippi Valley BioEnergy, Gulfstream Bioflex Energy LLC, and E85 Inc., (the Companies) were considering building new ethanol plants in Missouri, primarily in the northeast region of the state.² Those Companies and their investors desired locations with accessible corn supplies, adequate water supplies, high voltage electricity, access to railroads, and adequate natural gas supplies, some of which are subject to negotiation.³ These criteria increased commercial interest in areas like Hannibal, which is situated in the corn-belt near the Mississippi River and near railroad lines. However, locating a plant near electric transmission lines or natural gas pipelines does not guarantee that energy is available. If, for example, the local electrical and natural gas infrastructure is burdened with capacity constraints, there may not be adequate capacity available to serve new customers. Indeed, the companies considering building

² See, e.g., Chris Blank, *Ethanol Project Draws Former Governor and Basketball Coach*, Jefferson City News Tribune, May 25, 2007, <www.newstribune.com/articles/2007/05/25/news_state/221state17ethanol.prt> (proposed 100 million gallon ethanol plant in West Quincy to be built by Mississippi Valley BioEnergy); Jeff Wells and Matt Wagner, *Ethanol Company GBE Eyes Neosho*, Springfield Business Journal Online, Jan. 22, 2007, <<http://sbj.net/main.asp?Search=1&ArticleID=76162&SectionID=48&SubSectionID=108&S=1>> (proposed ethanol plant in Neosho and proposed \$220 million ethanol plant in Monroe City, both to be built by Gulfstream Bioflex Energy LLC); Rajah Maples, *Keeping Up With Ethanol Production*, KHQA7 News Online, Jan. 17, 2007, <http://www.connecttristates.com/news/news_story.aspx?id=25661> (proposed Monroe City ethanol plant to be built by Gulfstream Bioflex Energy LLC); and Ann Pierceall, *BASF Negotiating For Ethanol Plant*, Quincy (Ill.) Herald-Whig, Apr. 3, 2007, partially reprinted at <http://en.puworld.com/news_article.asp?ArticleID=45174500> (proposed \$60 million, 115 million gallon ethanol plant in Palmyra to be built by E85 Inc.).

³ For instance, good access to a railroad may lessen the need for local corn supplies.

ethanol plants in 2007 discovered that there was insufficient interstate or intrastate gas capacity in northeast Missouri to support the proposed plants. These areas are served by the LDCs Atmos and AmerenUE.⁴

Purchasing natural gas has two major components. First, a company must purchase the natural gas commodity itself. Second, a company must purchase a way to transport the gas to the desired location. LDCs provide residential, commercial and industrial customers within their certificated areas with both the commodity and the necessary transportation.⁵

Both Atmos and AmerenUE were contacted by the three Companies involved, who inquired about the availability of natural gas capacity to serve large industrial customers within their service territories. Neither Atmos nor AmerenUE could supply the proposed ethanol plants with their commodity and transportation needs due to the LDC's limited ability to acquire sufficient interstate pipeline transportation capacity to meet the natural gas requirements of the plants. When the Companies involved contacted Panhandle Eastern Pipe Line Company ("Panhandle Eastern") to discuss transportation availability, Panhandle Eastern informed them that its pipeline was "fully subscribed." This means that existing customers had already

⁴ As of November 2009, there were a total of six ethanol plants in operation in Missouri. See Missouri Department of Natural Resources, *Ethanol and Biodiesel Plants in Missouri*, November 18, 2009, <<http://www.dnr.mo.gov/ethanol/airpermit-statusforethanol.pdf>> (updated on a monthly basis). There were also nine proposed ethanol plants which were not yet constructed or operating, but had been issued valid construction and/or air quality permits. *Id.*

⁵ The LDCs in Missouri are Laclede Gas Company ("Laclede"), Union Electric Company d/b/a AmerenUE ("AmerenUE"), Missouri Gas Energy a Division of Southern Union Company ("MGE"), The Empire District Gas Company ("Empire"), Atmos Energy Corporation ("Atmos"), Southern Missouri Natural Gas ("SMNG"), and Missouri Gas Utility, Inc ("MGU").

contracted all of the firm capacity that can physically flow through the pipeline.⁶ These existing customers could be LDCs, industrial users and/or gas marketers.

The Companies involved then contacted the Missouri Public Service Commission (“PSC” or “Commission”), inquiring about the availability of natural gas to serve potential ethanol plants in northeast Missouri. In response, this Commissioner and former Commissioner Gaw opened Case No. GW-2007-0397 to investigate natural gas capacity-related issues in pipeline transmission and distribution systems. An inquiry to Panhandle Eastern by the Commission’s Federal Gas Group led to multiple discussions and eventual “on-the-record” presentations, which were conducted on April 27 and May 30, 2007. Those in attendance included personnel from AmerenUE, Atmos, Panhandle Eastern and the Commission’s Staff. The investigation consisted of two days of hearings, supplemented by additional research. In opening the investigation, the Commission had two major policy concerns: promoting economic growth and ensuring an adequate supply of natural gas to ratepayers. A company considering whether to build an ethanol plant in Missouri is clearly more likely to choose an alternative construction site when it discovers, upon initial investigation, that it does not have access to an adequate supply of natural gas to fuel the new plant at the proposed construction site. Thus, the lack of natural gas effectively limits the economic growth of the area under consideration. Furthermore, LDCs such as AmerenUE, Atmos, Empire, Laclede, MGE, and SMNG obtain their transportation capacity from the owners/operators of interstate pipelines. If the pipelines do not have any excess capacity available, the LDCs cannot obtain further capacity for their potential new customers either, effectively denying them both the ability to serve new ratepayers.

⁶ An example of this would be a pipeline that can physically transport to its customers a maximum of 100,000 Dth of natural gas per day. If this pipeline was fully subscribed, its owners would have already contracted out a total of 100,000 Dth/day.

I. A Primer on Gas Distribution Systems

The Commission regulates investor-owned LDCs that operate in the state of Missouri. There are also a number of municipal gas distribution systems in Missouri over which the Commission has only limited (safety-related) jurisdiction. All natural gas utilities have similar physical needs in meeting their customers' gas requirements, whether the entity involved is regulated by the Commission or is under municipal jurisdiction. Each type of utility must address two components, including purchasing the actual gas to be consumed and purchasing transportation to bring the gas from the wellhead to the customer's gas meter. When a residential customer calls an LDC, the LDC provides full natural gas service to the customer by providing both the gas commodity and the transportation to the customer's meter through its distribution system within the LDC's service territory.

In contrast, an industrial customer may choose to purchase each component separately. If it chooses to do so, it will purchase transportation capacity from both the interstate pipeline and the LDC. The interstate pipeline companies build and maintain underground pipelines used to transport gas from natural gas production areas such as the Rocky Mountains, the Mid-Continent (Kansas, Oklahoma and northern/western Texas), and the Gulf of Mexico. The LDC transports the gas from its connection at its delivery point or "city gate" from the interstate pipeline to the end user.

Gas LDCs typically offer service for two types of customers: full-service retail sales customers and transportation customers. A transportation customer simply uses the LDC or municipal pipeline distribution system to transport gas from the delivery point or city gate to the customer's facility. The customer is responsible for purchasing the actual gas commodity and

any upstream interstate pipeline transportation capacity that is required to transport the gas to the LDC or municipal distribution system.

For example, the interstate pipeline Panhandle Eastern has a natural gas pipeline that runs west to east across Missouri serving Kansas City and St. Louis. Atmos operates an LDC at Hannibal, Missouri that connects to Panhandle Eastern's pipeline via one of Panhandle Eastern's laterals passing by the city.⁷ When a customer contacts Atmos about purchasing transportation capacity, Atmos will sell transportation only on its local distribution system and does not sell its capacity on the interstate pipeline. The customer must also purchase capacity through Panhandle Eastern or some other entity that has rights to the interstate pipeline's capacity.

In contrast, a full service sales customer contracts with the LDC or municipal government for both the commodity *and* any transportation required to deliver the gas to its final destination. The LDC or municipal government becomes responsible for accommodating the new customer load from the production area to the customer's meter.

Interstate pipelines have limited transportation capacity due to the actual physical size of the pipe. Transportation capacity may be purchased as "firm" or "interruptible" capacity. If a customer purchases "firm capacity," it reserves a certain amount of pipeline transportation space. While this capacity may or may not be used on any given day, the customer has purchased that amount and has what is known as a "reservation" for that full amount. Customers typically contract for the maximum amount of gas they anticipate using on any given day. Firm transportation service guarantees delivery of the gas unless physical conditions interrupt service, which rarely happens.

⁷ A lateral, which branches out from the mainline to serve additional customers, is typically a smaller pipe with lower gas pressure as compared to the mainline.

Customers can also contract to purchase “interruptible capacity,” which is based on the unused firm transportation. As the name implies, such service can be interrupted if firm capacity customers are actually flowing gas at or close to their contracted maximums. The closer to the contracted capacity an interstate pipeline runs, the less capacity is available for interruptible service. Although interruptible customers are likely to be able to transport gas, there may be some days when they cannot transport all the gas they need because of their lower priority on the pipeline. Pipeline customers pay more for firm transportation rates, so they must weigh the economic costs and benefits of each type of transportation contract.

In the Midwest, weather plays a significant role in natural gas transportation demands. During winter months, LDCs use more of their contracted interstate pipeline capacity because its customers require more gas to meet their heating needs.⁸ During the spring and summer months, LDCs also transport considerable amounts of natural gas to storage facilities as a way to mitigate natural gas price volatility. Reserving space in natural gas storage facilities is an additional cost that LDCs incur. Interstate pipelines also use natural gas storage to help meet peak day demands on the pipeline system, thus improving reliability.

The Federal Energy Regulatory Commission (“FERC”) regulates the transportation of gas through interstate pipelines. Before 1992, pipeline companies owned both the transportation system and the natural gas supply. This resulted in low levels of competition, so FERC issued Order 636,⁹ which forced the pipelines to separate those business functions. Now, the pipeline companies no longer own the gas inside their pipelines. Likewise, access to pipeline capacity is required to be non-discriminatory. As noted above, the pipelines sell capacity to gas marketers,

⁸ Case No. GW-2007-0397, Transcript vol. 1, pg. 20-21.

⁹ *Federal Energy Regulatory Commission Order 636*, 59 FERC ¶ 61,030 (1992).

power generation companies, industrial customers, and LDCs.¹⁰ The interstate pipeline companies provide a quarterly Index of Customers in filings to FERC that identifies customers holding transportation contracts, as well as the quantity and terms of the agreements.

LDCs and municipal governments own their local pipeline distribution systems and purchase the gas to be delivered to their full service customers. The Commission regulates the LDCs, and requires them to provide safe and adequate service at just and reasonable rates.¹¹ The Commission may also restrict an LDC from acquiring excess capacity beyond its needs. Therefore, the Commission's allowed reserve and/or the LDCs' growth calculations may not allow for the increased gas requirements of a large new industrial customer. To put this in perspective, an ethanol plant may use in excess of 10,000 Mcf (thousand cubic feet) of gas *per day* while a residential customer may use only 70-80 Mcf of gas *per year*. Of course, an LDC may choose to assume the risk of contracting for additional gas transportation capacity if it believes it will be able to attract a customer that will then pay these additional costs. For these reasons, it is important for any potential industrial or commercial customer that anticipates a need for a considerable quantity of gas or electric energy to operate new facilities to contact the LDC or municipal utilities early in the planning process. In such cases, the economic viability of the facility may well depend on the ability to acquire sufficient energy capacity.

¹⁰ Case No. GW-2007-0397, Transcript vol. 1, pg. 12, ln. 1-5.

¹¹ Section 393.130, RSMo 2008.

II. Problems with Gas Capacity

A. Limits on Interstate Pipeline Capacity

Natural gas is an attractive fuel option because it has emission advantages over coal, oil or biofuels, and it is reliable.¹² However, interstate pipelines are increasingly becoming fully subscribed, in part as a result of increasing use of natural gas to fuel electric power combustion turbines throughout the United States. If an LDC in Missouri were interested in entering into contracts for additional firm interstate pipeline capacity involving a large quantity of natural gas, at present an LDC could not do so unless the pipeline invested additional capital in infrastructure to meet the increased demand.

FERC's 1999 Policy Statement¹³ supports passing the cost of interstate pipeline construction or expansion projects to the customers that benefit from the project. Interstate pipelines are built on a demand basis and FERC regulations require that customer demand supports construction of natural gas interstate pipeline facilities.¹⁴ As AmerenUE explained during the on-the-record presentation, before an interstate pipeline will be built, "pent-up demand for capacity basically along the whole system has to reach critical mass. And once it reaches that critical mass where enough shippers up and down the entire system are willing to commit to new capacity to support that construction of that expansion project, then [an interstate

¹² Case No. GW-2007-0397, Transcript vol. 2, pg. 40-41, ln. 24-7.

¹³ *Certification of New Interstate Natural Gas Pipeline Facilities*, 88 FERC ¶ 61,227 (1999) ("Policy Statement"), *clarified*, 90 FERC ¶ 61,128 (2000), *further clarified*, 92 FERC ¶ 61,094 (2000).

¹⁴ See Policy Statement at ¶ 61,736. "The Commission's goal is to appropriately consider the enhancement of competitive transportation alternatives, possibility of overbuilding, subsidization by existing customers, applicant's responsibility for unsubscribed capacity, avoidance of unnecessary disruptions of the environment, and the unneeded exercise of eminent domain in evaluating new pipeline construction." *Id.*

pipeline] can run the economics, they can take that to FERC, they can get their certificate, [and] they can expand the system.”¹⁵

When an interstate pipeline wishes to solicit expressions of general interest for firm transportation service from potential customers, it conducts what is known as an “open season.” Whether an “open season” project succeeds depends upon whether customer support through firm transportation commitments will cover the costs associated with developing the project. Some projects are not pursued due to lack of customer demand.

In order to help guarantee the integrity of the interstate pipeline system, interstate pipelines require a certain level of creditworthiness from potential customers before they will obligate capacity to serve them. The level of credit review is stated in the FERC-approved interstate pipeline tariffs and is available for review on the websites of the interstate pipelines and FERC.

An “open season” project that receives enough customer interest to proceed is then filed at FERC for approval. FERC determines how the project costs will be recovered. The cost of the project may be “rolled into” the existing rates or passed on to the specific group of new customers, depending on who will benefit from the project. Because interstate pipelines are built based on this demand model, limited available capacity is the default mode of operation.

B. Limits on LDC Capacity on Interstate Pipelines

When interstate pipelines are fully subscribed for firm transportation service, a new customer wanting firm transportation capacity must acquire capacity from an existing customer. In some instances, when large customers like those interested in building ethanol plants learn

¹⁵ Case No. GW-2007-0397, Transcript vol. 1, pg. 57, ln. 5-12.

that the interstate pipelines are fully subscribed, they may request to become full service sales customers of the LDCs. This requires the LDCs to have sufficient transportation capacity on an interstate pipeline to accommodate the potential new customer's additional capacity needs. However, LDCs do not typically include in their growth calculations additional capacity for large-end users that are unknown at the time the capacity reserves are determined.

LDCs in Missouri and other states typically hold contracts for firm transportation capacity on interstate pipelines to meet the current needs and immediate future growth potential of their distribution systems. The reserve allowed for growth, though, may be limited by the amount of costs the Commission allows the LDC to recover via rates. Still, nothing prohibits an LDC from contracting for more firm transportation if it is available from an interstate pipeline. The LDC must consider how it will recover the costs associated with the additional capacity. Additional factors for consideration are the promotion of economic development in the state of Missouri and future revenue potential.

As LDCs anticipate future growth in their natural gas sales, they must contract for additional firm transportation capacity. LDCs watch for interstate pipelines to list their available capacity. This information can be obtained by reading electronic bulletin board postings on pipeline websites, talking with marketing groups, and reading the FERC Gas Daily for industry press releases.¹⁶

¹⁶ Case No. GW-2007-0397, Transcript vol. 2, pg. 34-35.

III. Options for Easing Gas Capacity Limits

Although there are definite limits to gas transportation capacity, it is worth considering a few solutions. The options listed below are in addition to constructing a new pipeline. Any new pipeline would need to be approved by FERC and could not be built absent sufficient demand.

A. Adding Capacity Through Looping and Increased Compression

Owners of interstate pipelines have limited options to increase the physical amount of gas that can flow through their pipelines. One option is to increase horsepower at a compression station so that more gas can flow through the segment of the pipeline downstream of the compression station.¹⁷ Compressors are capital expenditures that may cost millions of dollars and require considerable planning and time to put into service. Environmental and FERC approval is required. FERC approval requires a demonstration that customer demand will offset the cost of the project. Also, if the interstate pipeline increases the gas pressure, any side system must have mechanisms in place to reduce the pressure before delivering it to a system that has a lower pressure rating.

The other option is to lay an additional pipe (or “loop”) alongside the existing pipe. Although the new loop can transport additional gas, looping is only used for limited distances to meet limited needs and is not equivalent to new construction. This option is a capital expenditure that must be supported by sufficient demand, and also requires regulatory approval. Many interstate pipelines currently have multiple pipes that run side-by-side.

The substantial capital commitment required to construct a lateral or loop to a facility or to increase upstream compression to meet additional capacity demands often requires customers

¹⁷ Case No. GW-2007-0397, Transcript vol. 1, pg. 81, ln. 9-14.

to enter into long-term contracts with the interstate pipeline, which are designed to allow the interstate pipeline to recover its capital costs from the customer over the term of the contract.¹⁸

B. Connecting With Other Interstate Pipelines

One option that may provide additional transportation capacity is connecting one interstate pipeline to another. For instance, the Rockies Express pipeline passes through Missouri with an interconnect to Panhandle Eastern's pipeline in Audrain County. The initial open season held by Rockies express ended on December 19, 2005, with customer commitments to transport 1.8 Bcf/day. However, the exceptionally high pressure of the Rockies Express interstate pipeline increases the cost of constructing an interconnect due to the pressure reduction that must occur in order to flow gas through Panhandle Eastern's pipelines (which require lower pressures than that of the Rockies Express pipeline).¹⁹

Interconnects are a substantial expenditure. Where an interconnect is placed also determines the areas that can benefit from the increased gas flow. Theoretically, more gas is available with the interconnection to another pipeline.

C. Supplementing Natural Gas With Other Energy Sources

If the end user supplements natural gas with another energy source (electricity, propane, etc.), there is less natural gas demand and less transportation capacity needed. The drawback of this alternative is clear, since it still requires that there be at least some initial access to natural

¹⁸ The length of such contracts is typically 10 years or longer. This is a result of the FERC policy mentioned *supra*.

¹⁹ For example, the maximum operating pressure at Panhandle Eastern's interconnect at Curryville, Missouri is 750 psi. Meanwhile, the Rockies Express pipeline has a maximum operating pressure of 1,480 psi. Regulator stations are used to reduce pressure between pipeline systems, LDCs, and end users.

gas. Therefore, such supplementation does not help a new industrial user which cannot find available capacity on the existing pipeline.

One way to supplement natural gas is through propane. For example, Atmos uses a peaking facility to mix propane with natural gas in order to supplement its natural gas supply. However, such facilities are not built by the interstate pipeline company, and it may be cost-prohibitive for an LDC or the end user to build and maintain such a peaking facility.

Storage can also be an effective tool when an entity has capacity on the interstate pipeline. Typical storage sites include caves, salt mines, depleted natural gas fields and aquifers. Unfortunately, the geological formations essential for gas storage do not exist in Missouri at a level where development would be economical.²⁰ Also, there is a cost associated with this method, as well as considerations regarding how often and when the storage will be used and replenished.

D. Purchasing Gas on the Secondary Capacity Market

Natural gas production companies such as British Petroleum (“BP”) and Conoco-Phillips control large amounts of capacity on interstate pipelines. These companies are large and stable enough to purchase capacity on new pipeline construction and maintain capacity on older pipeline systems. New industrial users may be able to contract with those companies to access capacity. A number of large gas marketing companies such as Oneok and Tenaska Marketing also hold large amounts of interstate pipeline capacity.

²⁰ Missouri currently has only one developed storage field, Laclede Gas Company’s Lange storage facility, north of Florissant.

However, contracts for purchasing gas on the secondary market are often similar to those for purchasing gas on the interruptible-type market,²¹ because the contracts for the released capacity tend to be structured in such a way that the producer may recall the capacity.²² As explained at the hearing by an LDC witness, “The producer may . . . release some of that capacity in the Rockies and let companies like AmerenUE to access the production area, the Rockies production area, but that’s at their discretion. . . . And many times, they’ll put capacity release terms and conditions on that, especially recallable. . . . That means they can recall it upon a certain notice and you lose control of that capacity. In other words, you can’t count on that to meet your peak design date because the producer can call the capacity back.”²³

IV. Missouri Pipeline Capacity Investigation

A. AmerenUE LDC Concerns

AmerenUE identified its primary concern as the amount of future interstate pipeline capacity coming into Missouri.²⁴ Because many of the interstate pipelines AmerenUE transports gas across are becoming “constrained” (or, in other words, fully subscribed),²⁵ and no firm

²¹ Case No. GW-2007-0397, Transcript vol. 1, pg. 12, ln. 7-10.

²² Case No. GW-2007-0397, Transcript vol. 1, pg. 12, ln. 13-16.

²³ Case No. GW-2007-0397, Transcript vol. 1, pg. 50-51, ln. 16-6. Presumably, large industrial users would have the same needs for reliability and control as an LDC.

²⁴ Case No. GW-2007-0397, Transcript vol. 1, pg. 11, ln. 8-19.

²⁵ *Id.* In total, AmerenUE has 30 distribution systems that rely on gas deliveries through Panhandle Eastern and another five in southeast Missouri that rely on Natural Gas Pipeline Company of America (“NGPL”) and Texas Eastern Transmission, LP (“Texas Eastern”). Case No. GW-2007-0397, Transcript vol. 1, pg. 14, ln. 3-14; Transcript vol. 1, pg. 105. Texas Eastern’s pipeline is currently fully subscribed and has been for quite a few years.

transportation capacity is available for new growth (especially for customers requiring large quantities of natural gas),²⁶ AmerenUE must rely on this future capacity to bring gas from various production basins into its system.

When AmerenUE is contacted by a new customer, its engineers run a distribution system software model to replicate the effect of the additional gas load on AmerenUE's distribution system.²⁷ The model includes all the AmerenUE distribution system facilities which go from the Panhandle Eastern connection at the LDC's city gate to each node or customer meter.²⁸ AmerenUE then decides whether its distribution system can handle the new load with existing facilities, or whether a modification to the distribution system or an expansion project will be necessary.²⁹

Although not required to do so, AmerenUE chooses to own and control its capacity back to the production bases, which allows for direct access to gas supplies.³⁰ AmerenUE also uses what is known as "backhaul" capacity on Panhandle Eastern's pipeline.³¹ Gas is brought up from Gulf region producers on either the Trunkline or NGPL pipelines and is backhauled on

Case No. GW-2007-0397, Transcript vol. 1, pg. 114, ln. 12-16. NGPL's pipeline is also fully subscribed, AmerenUE having recently acquired its last available capacity. Case No. GW-2007-0397, Transcript vol. 1, pg. 114, ln. 21-23.

²⁶ Case No. GW-2007-0397, Transcript vol. 1, pg. 11, ln. 8-19. Although AmerenUE constantly monitors the capacity markets for the interstate pipelines on which it operates, the current trend has been for the pipelines to lock up a lot of their shippers under long-term contracts due to the increasingly tight and constrained market and the fact that longer contracts provide less risk and a constant revenue stream for the pipelines. Case No. GW-2007-0397, Transcript vol. 1, pg. 76-77, ln. 22-2.

²⁷ Case No. GW-2007-0397, Transcript vol. 1, pg. 31, ln. 11-20.

²⁸ *Id.*

²⁹ Case No. GW-2007-0397, Transcript vol. 1, pg. 31-32, ln. 21-1. AmerenUE is not unique in this regard, as *any* LDC would need to perform a similar analysis to determine if its distribution system could accommodate a new customer.

³⁰ Case No. GW-2007-0397, Transcript vol. 1, pg. 12-13, ln. 17-7.

³¹ Backhaul is the movement of gas from a point on the pipeline to a point that is upstream on the pipeline.

Panhandle Eastern's pipeline.³² Although molecules of gas are not physically backhauled, the gas delivered into Panhandle Eastern's pipeline at Tuscola or Moultrie County, Illinois displaces gas delivered to the LDCs upstream on Panhandle Eastern's pipeline, which helps support pressure and supply in the overall Panhandle Eastern system.³³

AmerenUE also conducts demand studies, which are used to analyze historical demand profiles in relation to weather conditions.³⁴ Models simulating the system load are run against historical weather patterns for the past 30 years, including worst winter case scenarios,³⁵ to develop a peak design day, which reflects the maximum expected load for the worst winter case scenario.³⁶ The peak design day is the amount covered to protect AmerenUE's overall system flow,³⁷ and includes a reserve margin for future expansion.³⁸ To date, AmerenUE has always been able to meet its peak design day maximums.³⁹

Based upon its current firm transportation contracts and projected load growth,⁴⁰ AmerenUE anticipates its capacity to begin to be very tight starting in the year 2011, when its

³² Case No. GW-2007-0397, Transcript vol. 1, pg. 35, ln. 13-25. Some backhaul capacity is available on Texas Eastern's pipeline, but it is limited and expensive. Case No. GW-2007-0397, Transcript vol. 1, pg. 114, ln. 12-16. Meanwhile, the potential to backhaul on NGPL's pipeline is basically non-existent. Case No. GW-2007-0397, Transcript vol. 1, pg. 116-117, ln. 19-7.

³³ *Id.* AmerenUE's method is typical of those used by other LDCs to provide adequate gas supply to customers.

³⁴ Case No. GW-2007-0397, Transcript vol. 1, pg. 23, ln. 2-16.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ Case No. GW-2007-0397, Transcript vol. 1, pg. 23-24, ln. 24-9.

³⁹ Case No. GW-2007-0397, Transcript vol. 1, pg. 24, ln. 4-9.

⁴⁰ In recent years the gas industry has seen usage per customer decline with the development of more energy efficient appliances. Increases in the cost of natural gas may lead some customers to switch to alternative energy sources for heating.

reserve margin will have declined to zero.⁴¹ Although AmerenUE would still meet its peak design day maximums, there would be no growth cushion for any additional load.⁴² In other words, at that point, *any* additional growth would cause a negative reserve margin and would endanger AmerenUE's ability to meet its peak design day maximums.⁴³

In trying to solve this problem, AmerenUE has already considered several options and is actively looking for other solutions.⁴⁴

1. AmerenUE was in negotiations with Panhandle Eastern for future new capacity from a potential expansion project. However, there was not enough shipper interest to support the expansion and the project was not pursued by Panhandle. AmerenUE considers an expansion by Panhandle Eastern to be the "ultimate fix" for future capacity constraints. AmerenUE is hopeful that Panhandle Eastern might consider another expansion in the future.⁴⁵
2. AmerenUE has also been in discussions with Rockies Express since the pipeline company's inception with regard to new available capacity. However, since AmerenUE would not be able to control the capacity back to the production areas, the fear is that once the Rockies Express pipeline is built beyond Audrain County, Missouri, the markets out east will have a greater value and the producers will want to move the available capacity further east. In addition, the producer may release some capacity to AmerenUE and allow it to access the production area, but only at the producer's discretion. Since terms and conditions are often imposed in such capacity release agreements, the additional capacity could be recalled at any time upon notice, and could not be relied on to meet AmerenUE's peak design day requirements.⁴⁶

⁴¹ Case No. GW-2007-0397, Transcript vol. 1, pg. 38, ln. 10-22.

⁴² *Id.*

⁴³ Case No. GW-2007-0397, Transcript vol. 1, pg. 38-39, ln. 24-1.

⁴⁴ Case No. GW-2007-0397 Transcript vol. 1, pg. 54-57.

⁴⁵ During the on-the-record portion of the proceedings, Commissioner Gaw inquired as to whether additional capacity could be obtained from expiring contracts of other customers on Panhandle Eastern's pipeline. Case No. GW-2007-0397, Transcript vol. 1, pg. 79-80. Unfortunately, most of this capacity cannot be obtained due to the current capacity holder's Right of First Refusal ("ROFR"). *Id.* In this process, once the expiring capacity goes out for bid, the current capacity holder has the first right to renew its contract for the capacity at the same level bid for by the closest competitor. Generally, the current capacity holder signs a new contract rather than surrender its capacity to a competitor. Case No. GW-2007-0397, Transcript vol. 1, pg. 77, ln. 16-22.

⁴⁶ With regard to the Rockies Express pipeline, during the on-the-record portion of the proceeding, AmerenUE was asked whether there were any FERC rules or processes that would scrutinize the monopoly of the capacity

In addition, AmerenUE would have to obtain the commodity from producers who deliver gas into the appropriate pipelines. There are only so many producers that deliver gas into Panhandle Eastern's pipeline and into the new Rockies Express Audrain County interconnect on that pipeline. The gas would have to be purchased from only those producers that deliver to that point. In AmerenUE's view, competition has been "narrowed."

3. AmerenUE could work toward greater efficiencies in the three affiliated Illinois gas utilities and their storage facilities, which would allow more capacity to flow to Missouri.
4. AmerenUE has also considered backhauling gas from the Gulf region through the pipelines owned by Trunkline and/or NGPL. This method has always been considered something of a "back stop" for AmerenUE. However, in recent years, both pipelines have become constrained during the peak day periods and are typically fully subscribed during the winter months.
5. Compression, which would also help move gas down the line, is an option but is restricted by the maximum allowable operating pressure (MAOP), which is the maximum pressure at which the U.S. Department of Transportation allows a pipeline to operate without endangering the physical properties of the pipeline.

B. Atmos LDC Concerns

Atmos has firm capacity of a little over 18,000 MMBtu/day for the Hannibal, Canton, and Palmyra areas.⁴⁷ The Bowling Green, Missouri area is served by an additional 2,600 MMBtu/day.⁴⁸ Both system areas are served off of Panhandle Eastern's pipeline. Atmos also

ownership by the producers. Case No. GW-2007-0397, Transcript vol. 1, pg. 52-53. AmerenUE explained that when they are considering expansion projects, interstate pipelines are interested only in contracts committing to sizeable amounts of capacity for long periods of time in order to recover the costs of the project, and that FERC encourages economic decisions based on who has the resources to commit to a project. Case No. GW-2007-0397, Transcript vol. 1, pg. 53, ln. 22-25. Because FERC does not support an "if you build it, they will come" scheme, but rather an "if you want it built, you must pay for it" system, it is clear that its existing demand model for pipeline construction has contributed to the capacity problem discussed in this Report.

⁴⁷ Case No. GW-2007-0397, Transcript vol. 1, pg. 91, ln. 1-8.

⁴⁸ *Id.*

has a third system in Kirksville, Missouri that is served by ANR Pipeline Company (“ANR”) and a fourth in the Bootheel section of Missouri, which is served by Texas Eastern.⁴⁹

Panhandle Eastern owns a lateral that branches off of its main transmission line to just north of Palmyra, Missouri.⁵⁰ From that point on, the lateral is owned by Atmos.⁵¹ The lateral continues northeast, where it crosses under the Mississippi River and connects with AmerenIP’s LDC in Quincy, Illinois.⁵² This lateral, which is called the Hannibal-Quincy lateral, is fully subscribed with only a possibility of a backhaul arrangement.⁵³ Atmos confirmed that it would have the same problem finding capacity on this lateral as AmerenUE does.⁵⁴

Like AmerenUE, Atmos has a planning department that works with the company’s marketing department every year to determine the company’s design day requirements.⁵⁵ Declining natural gas use per customer and other factors have almost completely offset any growth by the Atmos LDCs, and the design day requirements have remained fairly constant over the last several years.⁵⁶

Factoring in a propane air plant in the Hannibal area that can supplement and increase natural gas deliveries by some 3,300 MMBtu/day, Atmos has a reserve margin of 2.2%.⁵⁷ If the

⁴⁹ *Id.*

⁵⁰ Case No. GW-2007-0397, Transcript vol. 1, pg. 92, ln. 5-17.

⁵¹ Case No. GW-2007-0397, Transcript vol. 1, pg. 93-94.

⁵² Case No. GW-2007-0397, Transcript vol. 1, pg. 94, ln. 17-25.

⁵³ Case No. GW-2007-0397, Transcript vol. 1, pg. 95-96, ln. 19-11.

⁵⁴ Case No. GW-2007-0397, Transcript vol. 1, pg. 96, ln. 12-16.

⁵⁵ Case No. GW-2007-0397, Transcript vol. 1, pg. 96-97, ln. 17-5.

⁵⁶ *Id.*

⁵⁷ Case No. GW-2007-0397, Transcript vol. 1, pg. 97, ln. 6-16.

propane air plant is excluded, the reserve margin would be -13%.⁵⁸ The propane is delivered through Panhandle Eastern's pipeline during the summer months, when there is less demand for natural gas.⁵⁹

Atmos would not be able to support an ethanol plant in the Hannibal, Missouri area.⁶⁰ An ethanol plant that requires 10,000 MMBtu/day to operate would be equal to the use of 50,000 residential customers (assuming customer use of 70-80 Mcf per year),⁶¹ and Atmos could currently accommodate only an extra 500 MMBtu/day.⁶² (This assumes that Atmos' propane air plant would be running "full bore.")⁶³ Since Atmos presently only serves small rural areas in northeast Missouri, the assumption has been that large customers entering the Atmos service area would be transportation customers, not sales customers.⁶⁴ Any increase in Atmos' capacity in northeast Missouri would be dependent on additional capacity availability from Panhandle Eastern and would most likely involve some sort of backhaul agreement.⁶⁵

The Kirksville, Missouri, system receives gas from the ANR pipeline system.⁶⁶ More reserve for growth is available on this system due only to Atmos' access to natural gas capacity storage.⁶⁷

⁵⁸ Case No. GW-2007-0397, Transcript vol. 1, pg. 98, ln. 3-11.

⁵⁹ Case No. GW-2007-0397, Transcript vol. 1, pg. 98-99, ln. 18-12.

⁶⁰ Case No. GW-2007-0397, Transcript vol. 1, pg. 101, ln. 7-12.

⁶¹ Case No. GW-2007-0397, Transcript vol. 1, pg. 101-102, ln. 13-1.

⁶² Case No. GW-2007-0397, Transcript vol. 1, pg. 103, ln. 1-8.

⁶³ Case No. GW-2007-0397, Transcript vol. 1, pg. 103, ln. 6-8.

⁶⁴ Case No. GW-2007-0397, Transcript vol. 1, pg. 109, ln. 3-20.

⁶⁵ Case No. GW-2007-0397, Transcript vol. 1, pg. 111-113, ln. 9-7.

⁶⁶ Case No. GW-2007-0397, Transcript vol. 1, pg. 91, ln. 6-8.

⁶⁷ Case No. GW-2007-0397, Transcript vol. 1, pg. 104-105, ln. 17-3.

Texas Eastern's pipeline, which serves Missouri's Bootheel area, is fully subscribed.⁶⁸ There is a possibility of getting gas from Ozark Gas Transmission, but it would depend on the exact location where the gas is needed.⁶⁹ Atmos has met with a group that was planning to build an ethanol plant in the Bootheel area to discuss their needs.⁷⁰ Even though the company was evidently planning to be a transportation customer, Atmos would still be required to make a significant expenditure to upgrade its system from Texas Eastern's pipeline to the proposed plant location.⁷¹ Although the would-be plant owners consulted with Texas Eastern and tried to work out a backhaul arrangement for the natural gas, this ethanol project is currently inactive.⁷²

C. LDC Concerns About New Ethanol Plants

Atmos is aware of four potential ethanol plants in northeast Missouri, but none of them would be in Atmos' service area.⁷³ One would be served by a municipal system near Monroe City, Missouri.⁷⁴ Another two would be in the Quincy, Illinois/West Quincy, Missouri area,⁷⁵ and the fourth would be located near Hannibal.⁷⁶

⁶⁸ Case No. GW-2007-0397, Transcript vol. 1, pg. 105, ln. 7-15.

⁶⁹ Case No. GW-2007-0397, Transcript vol. 1, pg. 105, ln. 15-17.

⁷⁰ Case No. GW-2007-0397, Transcript vol. 1, pg. 110, ln. 8-13.

⁷¹ Case No. GW-2007-0397, Transcript vol. 1, pg. 110-111, ln. 17-1.

⁷² Case No. GW-2007-0397, Transcript vol. 1, pg. 111, ln. 2-8.

⁷³ Case No. GW-2007-0397, Transcript vol. 1, pg. 107, ln. 4-13.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

AmerenUE indicated that one problem with serving one of the potential ethanol plants on the Missouri side of the Mississippi River is the Hannibal-Quincy lateral owned by Panhandle Eastern.⁷⁷ Panhandle Eastern would be willing to expand the capacity on the lateral via a backhaul agreement if they received a firm, long-term commitment for the capacity.⁷⁸ Panhandle Eastern would have to loop their pipelines at all the points of constraint on the lateral to provide this additional capacity.⁷⁹ The other potential plant in the area (Monroe City) would be served by a municipal system.⁸⁰

Another issue with serving ethanol plants is the chance they will not be in business for 10 years or more.⁸¹ This is a fairly new industry in Missouri, without a long track record. Interstate pipelines and Missouri utilities may not want to incur the significant expense to upgrade their systems to accommodate an ethanol plant if it is unknown whether the plant will remain viable over the long term. Of course, in addition to access to natural gas, ethanol plants require a location near a large water supply and some sort of rail or transportation system.⁸²

D. Panhandle Eastern Concerns

Panhandle Eastern has been serving the state of Missouri for the past 70 years.⁸³ Panhandle Eastern's system was originally built through the middle of the state to serve cities

⁷⁷ Case No. GW-2007-0397, Transcript vol. 2, pg. 27-32.

⁷⁸ Case No. GW-2007-0397, Transcript vol. 2, pg. 12, ln. 3-8.

⁷⁹ Case No. GW-2007-0397, Transcript vol. 2, pg. 17, ln. 15-20.

⁸⁰ Case No. GW-2007-0397, Transcript vol. 1, pg. 107, ln. 10-11.

⁸¹ Case No. GW-2007-0397, Transcript vol. 2, pg. 49-50, ln. 29-2.

⁸² Case No. GW-2007-0397, Transcript vol. 1, pg. 108, ln. 5-11.

⁸³ Case No. GW-2007-0397, Transcript vol. 2, pg. 11, ln. 7-10.

such as Kansas City and Jefferson City and other areas eastward.⁸⁴ Over the past five to seven years, Panhandle Eastern has added gas-fired electric generators and ethanol plants to its customer base.⁸⁵ These new customers have resulted in an increase of almost 120,000 MMBtu/day in the winter months and 260,000 MMBtu/day in the summer months.⁸⁶

Panhandle Eastern owns and operates a telescoping pipeline whose capacity starts in Haven, Kansas at 1.5 Bcf/day but drops off to 1 Bcf/day as it makes its way through Missouri to Tuscola, Illinois.⁸⁷ In Tuscola, Panhandle Eastern's pipeline interconnects with Trunkline's pipeline and the pipeline capacity increases back up to 1.5 Bcf/day. The same pattern occurs several times throughout the pipeline's eastern route.⁸⁸ Panhandle Eastern's pipeline is a four-line system, meaning that four pipes are in the ground transporting gas along the pipeline's route.⁸⁹ Adding these additional pipes over time has helped Panhandle Eastern keep up with increasing demand for capacity on its system.⁹⁰

With the advancement of technology, new pipelines (such as the Rockies Express Pipeline) are being built, which have been referred to as "silver-bullet pipelines."⁹¹ The pipes are usually of a larger diameter, use higher pressure and are designed to take large volumes of

⁸⁴ Case No. GW-2007-0397, Transcript vol. 2, pg. 11, ln. 11-15.

⁸⁵ Case No. GW-2007-0397, Transcript vol. 2, pg. 11, ln. 18-22.

⁸⁶ Case No. GW-2007-0397, Transcript vol. 2, pg. 11, ln. 22-25.

⁸⁷ Case No. GW-2007-0397, Transcript vol. 2, pg. 15, ln. 5-15.

⁸⁸ *Id.*

⁸⁹ Case No. GW-2007-0397, Transcript vol. 2, pg. 15, ln. 16-20.

⁹⁰ *Id.*

⁹¹ Case No. GW-2007-0397, Transcript vol. 2, pg. 15-16, ln. 23-6.

gas directly from the production zone to the intended market.⁹² Although Panhandle Eastern believes that in the past, it has demonstrated its “willingness to put assets in the ground” and to “adjust its gas operations to better serve the state,”⁹³ it recognizes that its pipeline was designed to “serve peaking needs” in Missouri.⁹⁴ Because pressures on the system have to be regulated down to interconnect with other various systems, Panhandle’s system cannot support an expansion with large diameter pipe and increased pressure,⁹⁵ and any expansion will have to be achieved by looping or compression.⁹⁶ While Panhandle Eastern continues to monitor market conditions to find opportunities to expand its mainline and add additional forward or “fronthaul” capacity,⁹⁷ for now, Panhandle Eastern believes that “[g]iven [its] current contract levels, terms, we think the backhaul opportunities are the best for incremental Missouri loads.”⁹⁸

V. Legislative Attempts to Improve Capacity

A few states have passed legislation to assist in providing infrastructure. The types of legislation range from the creation of new state agencies to passing a specific bill for a particular project. Wyoming has created a Wyoming Pipeline Authority. The Authority is a commission, but is not under the control of Wyoming utility regulators. The Authority has the ability to issue

⁹² *Id.*

⁹³ Case No. GW-2007-0397, Transcript vol. 2, pg. 12, ln. 3-5.

⁹⁴ Case No. GW-2006-0397, Transcript vol. 2, pg. 16, ln. 7-9.

⁹⁵ Case No. GW-2007-0397, Transcript vol. 2, pg. 16, ln. 7-15.

⁹⁶ Case No. GW-2007-0397, Transcript vol. 2, pg. 17, ln. 15-20.

⁹⁷ Case No. GW-2007-0397, Transcript vol. 2, pg. 12, ln. 9-12.

⁹⁸ Case No. GW-2007-0397, Transcript vol. 2, pg. 12, ln. 6-8.

bonds to construct, maintain and investigate natural gas pipelines, and may own, sell, and lease pipeline capacity. This allows the state to maintain excess capacity to supply needs within the state.

In contrast, in North Carolina, through which only one interstate pipeline passes, has a legislatively-established infrastructure fund. The legislation allows communities to finance construction of laterals to the interstate pipeline so that natural gas service can reach their citizens. LDCs apply for the money, which can then be used to build the laterals or purchase new capacity through interstate pipeline capital expansion projects. Instead of setting up a system to assist in capacity problems, Minnesota's legislature has acted based on specific facts. For instance, the Minnesota legislature passed at least one bill authorizing a state bond to be used to construct 23-mile pipeline to a specific steel plant.

VI. Conclusion

Energy is a critical component in economic development. Industry and business require reliable supplies of natural gas for manufacturing processes as well as for large-scale heating. Because Missouri produces very little natural gas, these supplies must be "imported" from other domestic sources along interstate pipelines systems. The capacity available along these systems is limited, and the lack of adequate supplies in gas supplies over these pipelines has resulted in several projects being cancelled and others indefinitely delayed while options were considered.

The current system of requiring payment by new users on pipelines in advance stifles economic development opportunities in various parts of Missouri. Areas with limited or no access to natural gas are at a significant disadvantage when competing with other areas that are better-served.

Creative solutions and new ways of thinking are needed to ensure that all regions of the state have the ability to compete in the global marketplace. The Missouri Department of Economic Development (“DED”) could play a significant role in identifying underserved areas and anticipating future energy needs. DED is in a position to gather business interests, evaluate energy needs and coordinate any effort at pipelines expansion.

Legislative changes may also be appropriate to harness the bonding authority of the state or otherwise leverage other possible resources to ensure access to energy by commercial interests ready to invest. Several other states have identified similar problems and enacted legislation to address the lack of capacity.

The PSC stands as a resource to both DED and Missouri businesses seeking opportunities for expansion. The Commission has various interstate pipeline resources that can be accessed to discuss future potential projects (or where capacity constraint issues create potential economic development problems). The Commission can assist by providing information or linking developers with other interested parties. Further, improved dialogue and education for certain stakeholders would be helpful so that business interests can be aware of Missouri opportunities. Pipelines, gas utilities and other participants in the energy sector can also play a greater role in identifying solutions to these challenges.

Respectfully submitted,

A handwritten signature in black ink, reading "Robert M. Clayton III", is written over a horizontal line.

Robert M. Clayton III
Chairman