BEFORE THE PUBLIC SERVICE COMMISSION OF THE STATE OF MISSOURI

Case No. GO-2000-705

MISSOURI GAS ENERGY RELIABILITY REPORT JULY 1, 2001 THROUGH JUNE 30, 2002



HIGHLY CONFIDENTIAL

This report contains material that has been classified HIGHLY CONFIDENTIAL under the terms of a Protective Order issued in Case No. GO-2000-705. Only authorized persons are entitled to view the HIGHLY CONFIDENTIAL portions.

July 1, 2001

NP

39

SCHEDULE

RELIABILITY REPORT MISSOURI GAS ENERGY JULY 1, 2001 THROUGH JUNE 30, 2002

~

I.	PROJECTIONS	
	A PEAK DAY PROJECTIONS	1
	1 Historic Peak	2
	 Design Peak Day 	
	 Peak Day/Heating Degree Day Analysis 	
	B. ANNUAL LOAD PROJECTIONS	7
	1. Base Case	
	2. High Case	
	3. Low Case	8
	4. Monthly Peak/Heating Degree Day Analysis	8
	C. PROJECTED SUPPLY/TRANSPORTATION REQUIREMENTS	12
II.	SUPPLY/DELIVERY RESOURCES	
	A. PIPELINE TRANSPORTATION/STORAGE CAPACITY	14
	1 Pipeline Capacity	14
	2. Storage Deliverability	15
-	3. Identified Needs for Transportation or Storage Capacity	16
	B. GAS SUPPLY RESOURCES	
· .	1. Supplies Under Contract	
1 - A - A - A - A - A - A - A - A - A -	a.) Quantity	
	b.) Term	
	2. Additional Supplies to be Contracted For	19
III.	SUMMARY AND CONCLUSIONS	
	A. ADDITIONAL ACTIONS TAKEN TO ENSURE RELIABILITY	
	B. EMERGENCY CURTAILMENT PLAN	
AP	PENDIX A: NO-NOTICE ANALYSIS	A-1
AP	PENDIX B: PIPELINE EXPANSION PROJECT PRESENTATIONS	B-1

. د د .

LIST OF TABLES AND FIGURES

I-1.	Peak Day Analysis, 2000-2001	
I-2.	Transportation Capacity Compared To Historic Peak Day	
I-3.	Transportation Capacity Compared To Design Peak Day	6
I-4.	MGE Historical Demand Calculator - 30-Year Normal Weather	
I-5.	MGE Historical Demand Calculator - 10-Year Normal Weather	
П-6.	Firm Contracts, 2001	
III- 7.	Pipeline Capacity and Storage Deliverability, Effective October 1, 2001	
		000004

.

PEAK DAY PROJECTIONS

A key consideration in the forecasting process is the firm demand during extreme weather conditions. This information is necessary to allow the Company to ensure adequate supplies and pipeline capacity to meet all of its firm sales obligations under such conditions.

Because they account for a small portion of total sales, peak day loads have a modest revenue impact. Nevertheless, they are important because of the operating and fixed costs that are incurred in providing a system to meet peak loads. Such costs include activating peaking supply contracts and purchasing additional volumes on the open market, as well as those associated with providing adequate transmission and distribution capacity to meet peak demand.

The peak day load is calculated based on an analysis of the relationship between daily weather and daily sales requirements. The data are developed from firm sales and historic weather information. The design peak day forecast is calculated by averaging the heating degree days of the four most recent coldest winter days and applied to usage per heating degree day. The historic peak day forecast is based on the single, coldest 24-hour period for which there are verifiable records. A series of regression analyses are performed on the historic data described above to determine the base (constant) and weather sensitive or heat load (variable) factors. These factors can then be applied to degree day figures and projected customer growth patterns to approximate load requirements for a peak day. Load

requirements or volumes of gas are expressed in Dekatherms (Dth) and daily volumes are expressed as Dekatherms per day or Dth/day.

Historic Peak Day

The historic peak day is based on the lowest temperatures that might be expected in a service area. The Company's predecessor for its Missouri operations advised the Company that this peak occurred on December 23, 1989 at a level of 89 HDD. Through independent research the Company verified that the actual peak was 85 HDD and that it occurred in the Kansas City market area on December 21, 1989. This represents an average daily temperature of -20 degrees Fahrenheit. Because it is weather that was actually experienced, the Company believes that 85 HDD is the extreme that should be used for planning purposes. The Company does not believe this weather is likely to occur regularly. Conversely, it may not be the coldest weather the region will ever experience. The Company believes that failure to plan for actually experienced extreme cold weather may limit its ability to meeting its firm service obligations.

Design Peak Day

The four most recent peak days experienced in the Company's service area occurred on January 10, 1982 with 76 HDD, December 24, 1983 with 77 HDD, December 21, 1989 with 85 HDD, and February 2, 1996 with 73 HDD. The average of these winter peak days is 77 HDD. The Company uses 77 HDD for its design peak day and has determined that at this point 99 percent of Missouri's peak demand will be met. This is one of the Company's key points for supply and capacity planning purposes.

I GHLY CONFIDENTIAL

3

000005

Peak Day/Heating Degree Day Analysis

<u>2000-2001</u>

P'GHLY CONFIDENTIAL

000006

Notwithstanding the unusually 1998-2000 warm weather generated by a strong La Niña, the slight difference of 0.017 percent in historic peak day projections between the 1998-1999 winter and 2000-2001 winter forecasts—** Dth for 1998-1999 compared to ** Dth for 2000-2001—provides added confidence in the Company's forecasting.

methodologies. This indicates that the Company's average annual escalator continues to be substantially accurate. The results of the revised peak day projections are shown in Figure I-2 and Figure I-3. This newest study covers a time horizon of 2001 through 2012. Based on historical weather, the Company's transportation capacity currently under contract would not serve the forecasted peak day beyond the 2003-2004 winter. The Company is now reviewing capacity alternatives, which would become effective following this time period and anticipates the finalization of the new capacity contracts to be within the next twelve months. This is discussed further in Section III, "Additional Actions Taken To Ensure Reliability."

15

÷.,

L

P'GHLY CONFIDENTIAL

5

000007

l:

ł

JECTIONS

I''GHLY CONFIDENTIAL

6

ANNUAL LOAD PROJECTIONS

As in the peak day forecast, the annual load forecast is calculated based on an analysis if the relationship between daily weather and daily sales. Annual load forecasts are maintained on a twelve-month rolling basis (short-term). Long-term (ten-year) forecasts are developed by calculating and applying an average annual escalation factor to the short-term totals. The Company develops three separate forecasts for planning purposes; a base case, high case, and low case forecast.

Base Case

The base case forecast is a "most likely" scenario. The "base load" component of this forecast is arrived at by calculating an average daily volume for the summer months of July and August and applying it to each month of the forecast period. Notwithstanding the addition of incremental load that would necessitate an immediate adjustment, this component remains constant and is updated once each year for the prior 12-month period. The "heat load" component of this forecast is developed by "weather normalizing" delivery volumes from the most recent 12 months ended. Once weather and delivery volumes are known for a month, a "normalization" factor is calculated by dividing the actual heating degree days by the normal heating degree days. The monthly heat load is arrived at by subtracting the base load (see above) from the total delivered volume. The normalized heat load is calculated by dividing this remainder by the "normalization" factor. The base case totals are the sum of the normalized heat load and the base load for each month, multiplied by an average annual escalation factor.

High Case

The high case scenario is developed using the coldest weather that has occurred, on a month-by-month basis, during the preceding 15 year period. A "high case factor" is calculated by dividing actual heating degree days (for the coldest month) by the normal heating degree days for the same month. The weather normalized volumes calculated in the base case are divided by the high case factor to establish the adjusted heat load. The high case totals are the sum of the adjusted heat load and the base load for each month, multiplied by an average annual escalation factor.

Low Case

The low case scenario is developed using a similar methodology, but uses the warmest weather that has occurred on a month-by-month basis during the preceding 15 year period. A "low case factor" is calculated by dividing actual heating degree days (for the warmest month) by the normal heating degree days for the same month. The weather normalized volumes calculated in the base case are divided by the low case factor to establish the adjusted heat load. The low case totals are the sum of the adjusted heat load and the base load for each month multiplied by an average annual escalation factor.

Monthly Peak/Heating Degree Day Analysis

When all months are combined the high and low cases represent unlikely annual periods. The purpose of these scenarios is to identify a range of demand that could occur during any given month included in the study horizon. The "most likely" high and low annual forecasts

are arrived at by adjusting the base case scenario by a percent of normal weather (e.g., 105 percent for high and 95 percent for low).

Included are two annual load forecasts for fiscal year 2002. The first study, shown in Table I-4, utilizes 30-year weather data and is the basis for the Company's current projections. The second study, Table I-5, utilizes 10-year weather data. Since projections based on 30 years result in a more conservative forecast, for reliability purposes, the Company will use it for fiscal 2002 planning. During this time, the Company will monitor the actual results and may base future plans wholly on 10-year weather data. In any event, the differences appear slight. Monthly weather-induced variations in demand can be viewed as the difference between the "low," "base," and "high" case scenarios.

The National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC) released preliminary 1971–2000 Base Period Means on May 17, 2001 replacing the 1961–1990 means. Also called "normal weather," these 30-year averaged values are updated decennially for the most recent 30-year period. Currently, the new normals are only being used by NOAA's Climate Prediction Center for their long-range forecasts and are not yet available to the Company's weather service, Accu-Weather. The new normals are based on preliminary data and NCDC will release a more accurate set of climate normals later this year. The Company uses normal weather heating degree day values that have been established for the Kansas City, Missouri weather station, MCI. The Company will put the new base period's normal monthly heating degree day values into effect when they become available.

(]

 \bigcirc

1

-

.IGHLY CONFIDENTIAL

10

.

the states and a state of the states and a state of the states of the states and a state of the states of the states of the states

000013

PROJECTED SUPPLY/TRANSPORTATION REQUIREMENTS

Introduction

Accurate forecasting of demand over short (one year) and long (five to ten year) time horizons provides the Company with the planning tool it needs to contract for additional gas supplies and transportation capacity in a timely and cost effective manner. The following are the Company's projections of supply and transportation requirements for the forecast period.

Supply Requirements

•

The system supply requirements include the forecasted customer demand, including fuel, plus the storage injection. Forecasted customer demand is discussed in Section I., "Annual Load Projections." The Company's supply needs are also discussed in Section II., "Additional Supplies To Be Contracted For."

Transportation Requirements

As previously described, forecasts are developed for both annual and peak day requirements. However, it is the peak day forecast that drives the level of firm transportation service that will be necessary in a given year. The planning process must result in a transportation portfolio that meets firm customers' peak day requirements during the period of the study.

The planning cycle of a pipeline company is substantially longer than for a local distribution company (LDC). This is due to the longer lead times and economics associated with pipeline construction and capacity expansion projects. For this reason, the LDC must $\Omega\Omega\Omega14$

contract capacity in longer blocks of time, usually five to ten years. The timing of pipeline expansion projects does not necessarily match the needs of the LDC and may result in a temporary surplus or temporary deficiency of firm capacity. Because The Company's capacity is contracted for in longer blocks and added periodically over a five to ten year time horizon, capacity may be lower or higher than the historic peak day at any given point in time. There is, however, sufficient capacity to meet the design peak day over the 10-year forecast horizon, which ensures 99 percent of the Company's peak demand will be met. The Company endeavors to maintain a reasonable reserve margin above the design day minimum to meet the historic peak.

A comparison of projected peak day demand to transportation capacity is shown in Figure I-2 and transportation capacity compared to projected design day demand is shown in Figure I-3. Table I-4 and Table I-5 show the annual demand for the forecast period. A detailed discussion of transportation requirements can be found in Section III., "Additional Actions Taken To Ensure Reliability."

II. SUPPLY/DELIVERY RESOURCES

060016

I''GHLY CONFIDENTIAL

000017

II. SUPPLY/DELIVERY RESOURCES

PIPELINE TRANSPORTATION/STORAGE CAPACITY

Pipeline Capacity

The Company currently holds firm transportation contracts on four interstate pipelines; Williams Gas Pipelines-Central (Williams), Panhandle Eastern Pipe Line (PEPL), Kansas Pipeline Company (KPC), and Pony Express Pipeline (PXP), which is owned and operated by Kinder Morgan Interstate Gas Transmission LLC (KMIGT). The combined firm deliverability on the four pipelines is ****** Dekatherms per day (Dth/day). This level of service is adequate to cover the projected design peak day of ******, and is ****** Dth above the projected historical peak day of ****** Dth projected for the 2001-2002 heating season. This should ensure reliable delivery of gas in the coming heating season for the Company's high priority customers. As discussed previously in Section I, "Transportation Requirements," capacity is typically contracted for in five to ten year blocks and added periodically over a five to ten year time horizon. Because of this phenomenon, the contracted capacity in any given year may be lower or higher than the projected historical peak day demand.



15

In addition to the firm capacity described above, the Company holds interruptible contracts on two of the four pipelines with a total deliverability of ****** Dth/day. Historically, some level of interruptible transportation has been available on a peak day. Maintaining these interruptible contracts for service has provided an additional alternative to meet peak demand although they could not be relied upon. However, given the high demand for gas-fired electric generation, interruptible transportation may not, in any event, be available in the future.

Storage Deliverability

The Company currently owns storage capacity rights totaling **** Constant of** * Dth on two interstate pipelines, Williams Gas Pipelines-Central and Panhandle Eastern Pipe Line. The 00001.8

II. SUPPLY/DELIVERY RESOURCES

€. S **\$**

combined deliverability of ** Dth/day is utilized to augment flowing gas during the withdrawal months of November through March and represents approximately 54 percent of the total supply used to meet the peak day demand.

Identified Needs for Transportation or Storage Capacity

There is an identified need to add capacity prior to the 2004-2005 heating season to cover the projected historic peak day. The peak day forecasts and transportation capacity are shown in Figure I-2 and Figure I-3. A detailed discussion of transportation capacity is in Section III, "Additional Actions Taken To Ensure Reliability." Large daily swings on the Company's system have confirmed the need for alternative storage capacity arrangements. The Company is seeking to maintain cost savings while researching alternative storage arrangements with KMIGT.

FERC Order 637

FERC Order 637 allows pipelines to file pro-forma tariff sheets to institute peak/off-peak rates for short-term services including multi-year seasonal contracts, and to file for termdifferentiated rates as part of a Section 4 rate proceeding, both on a voluntary basis. The Company currently holds seasonal capacity arrangements on the PEPL system, but tariffs for the other pipeline suppliers have not allowed this structure. The Company has sought to negotiate a seasonal capacity arrangement with Williams; however, tariff structures did not allow the maintenance of TSS agreements in a seasonal manner. Because of this, the Company renewed its agreements under the current TSS structure—one-third production and two-thirds market—and will participate in future proceedings to allow the seasonalizing of this capacity.

II. SUPPLY/DELIVERY RESOURCES

Williams indicated to the Company that they are not going to file for seasonal capacity in the near future because daily balancing is their next priority. An analysis identifying excess production and market area capacity on a seasonal basis was included in the Company's Reliability Report filed on July 1, 2000.

II. SUPPLY/DELIVERY KESOURCES



GAS SUPPLY RESOURCES

Supplies Under Contract

The Company has three long-term firm purchase contracts with Amoco, OXY, and KN Marketing. Additionally, the Company entered into a three-year agreement with Duke Energy Trading and Marketing (DETM) to provide additional gas supplies needed by the Company. DETM is given the Company's annual, monthly, and daily demand forecasts and DETM will provide all incremental supply required to meet 100 percent of the Company's needs. A tentative agreement was reached with DETM on April 1, 2000 and the formal agreement became effective September 1, 2000. Table II-6 shows the Company's firm supplies currently under contract.

Table II-6

II. SUPPLY/DELIVERY RESOURCES

Additional Supplies To Be Contracted For

Demand

To determine new supply requirements, the Company reviewed customer demand and developed a Base Case, High Case, and Low Case scenario as described in Section I, "Annual Load Projections." Projected monthly demand was calculated as the Base Case scenario because it is the "most likely" to occur.

Supply

Due to the commitment with DETM, the Company does not anticipate needing to acquire incremental supply until the summer of 2003. However, considering the current peak day capacity requirements, the Company may review forward contracts for supply and capacity to become effective upon termination of the contract with DETM.

In addition, as a result of the general tightness of supply experienced during the 2000-2001 winter, it is apparent that growth in natural gas reserves and increased deliverability will come primarily from the Rocky Mountain area to serve the Western Missouri markets. The older Mid-Continent basins, including the Hugoton fields, are forecasted to have declining production. It is the Company's position that continued efforts to increase access to growing Rocky Mountain supplies will be in the best long term interest for Western Missouri customers

III. SUMMARY AND CONCLUSIONS

•

III. SUMMARY AND CONCLUSIONS

ADDITIONAL ACTIONS TAKEN TO ENSURE RELIABILITY

Supply

The supply options of the Company's portfolio consist of various components. These include firm supplies contracted for on a long-term basis, firm or interruptible transportation on four interstate pipelines, and two storage services. The utilization of these components varies depending on demand and operating conditions.

The Company does not anticipate needing to acquire incremental supply until the summer of 2003 when its commitment with DETM will expire. However, considering the current peak day capacity requirements, the Company may review forward contracts for supply and capacity to become effective upon termination of the contract with DETM.

The Company is actively reviewing alternatives to increase capacity access to Rocky Mountain supplies.

Transportation

As indicated earlier in this report, the Company has identified a need for additional transportation capacity prior to the winter of 2004-2005 to meet the projected peak day. The Company is proactively analyzing available alternatives to meet this additional transportation capacity as well as other issues that are relative to expansion of future deliverability and reliability needs.

I 'GHLY CONFIDENTIAL

21

It will also be important to evaluate the location of future supply developments when discussing additional transportation capacity. It is clear that the older supply basins in the Mid-Continent region have led to falling long term production characteristics. For the Western Missouri markets, the Rocky Mountain supply area is the only currently connected area showing growing reserves and deliverability. Access to this growing supply area will be important for the long term supply security and reliability in Western Missouri.

At this writing, there are three proposed interstate pipeline expansion projects that have been presented to the Company to expand access to Rocky Mountain supplies. All of these expansions have the ultimate purpose of developing interstate pipeline infrastructures that can support the movement of future supply deliverability from the Rocky Mountain production area, in particular the Powder River Basin. Currently, supply from this area has attractive commodity pricing compared to other supply options available today. Most supply exploration

III. SUMMARY AND CUNCLUSIONS

and development activity is focused in this new expanding area in contrast to the relatively low supply exploration and development activity in existing supply basins. The Company is in the process of analyzing the total delivered cost implications of the proposed interstate pipeline expansions relative to both supply and transportation costs. For information purposes only, copies of presentations received by the Company regarding pipeline expansion projects are attached as Appendix B and are deemed highly confidential. The Company will propose a contract to expand its firm capacity from the Rocky Mountains utilizing one of these alternatives to meet its projected capacity requirements.

The Company's service territory is located in western Missouri, with service primarily in the St. Joseph, Joplin, and Kansas City, Missouri areas. The St. Joseph and Joplin areas are served exclusively by Williams Gas Pipelines-Central. The Kansas City area is currently served by four interstate pipeline systems including: 1.) Williams Gas Pipelines-Central; 2.) Kansas Pipeline Company; 3.) Panhandle Eastern Pipe Line; and 4.) KMIGT-Pony Express Pipeline.

Williams Gas Pipelines-Central

Focusing on the Kansas City area, which consumes the majority of the gas supplies, the Company has primary interconnects with the Williams system in four locations: 1.) Riverside Station located in Riverside, Missouri; 2.) 47th and Belinder Station located on the west side of Kansas City, Missouri; 3.) Glavin State Line Station located in southwest Kansas City, Missouri on the Missouri and Kansas state line; and 4.) Grain Valley Station located on the eastern edge of the city. These four stations feed into a high-pressure loop system that provides essential feeds into the downtown area and the surrounding suburban communities.

22

They also provide primary deliveries into the Kansas City metropolitan area. *

F''GHLY

CONFIDENTIAL

23

000027

Panhandle Eastern Pipe Line

The Panhandle Eastern system currently provides exclusive service to small farming communities located east of Kansas City, Missouri. Panhandle Eastern also provides limited service to the Kansas City metropolitan area through two interconnects located on the southwest side of the city and provides for all of the purchase-for-resale demand generated at Warrensburg, Missouri. Williams still serves some transportation customers behind the Company's city gate at that location.

III. SUMMARY AND CONCLUSIONS

KMIGT -- Pony Express Pipeline

ł...

The Kansas Pipeline system currently delivers at a single point, the Riverside Station, with such deliveries paralleling those made by Williams in the same area.

000028

I GHLY CONFIDENTIAL L.

The following table further illustrates the Company's pipeline capacity and storage deliverability. Table III-7 shows pipeline capacity and storage deliverability effective July 1, 2001. These volumes remain subject to change based on ongoing negotiations with the respective pipelines.

III. SUMMARY AND CONCLUSIONS

i '

H GHLY CONFIDENTIAL

26

Table III-7



EMERGENCY CURTAILMENT PLAN

The following is Section 13 of the Company's General Terms and Conditions as approved in Case No. GR-96-285. This section addresses the Priorities of Service under which the Company will curtail service during periods of supply deficiencies or limitation of pipeline capacity. The Company stands ready to execute this plan as conditions warrant.

The Company believes this report verifies that adequate steps have been taken to ensure the reliability of supply for its resale customers. The inability to control volumes delivered for end use by the Company's transport customers may lead to the implementation of this plan in the event there are major failures in third party supplies.

13. PRIORITY OF SERVICE

- 13.01 PURPOSE: The purpose of this rule is to establish the priority of service required to be provided by Company during periods of natural gas supply deficiencies and/or capacity constraints on the Company's distribution system.
- 13.02 CURTAILMENT: During periods of natural gas supply deficiencies and/or capacity constraints on the Company's distribution system, the Company will curtail or limit gas service to its customers (or conversely, allocate its available supply of gas) as provided in this Rule 13. Curtailment may be initiated due to a supply deficiency or limitation of pipeline capacity or a combination of both. For purposes of this Rule, interruption of service to a particular customer due to the failure of the customer's transportation volumes to be delivered to Company does not constitute curtailment under this rule.
- 13.03 PRIORITY CATEGORIES: Each customer's requirements shall be classified into priority categories. The priority categories, to be utilized by the Company for allocating available gas service, listed in descending order of priority, with Category 3 being the lowest priority and Category 1 being the highest priority of service to be retained are listed below:

For an MGE Sales Service Supply Deficiency

Category 1.

Sales service to residential customers, public housing authorities, public schools, hospitals, and other human needs customers receiving firm sales service from the Company

Category 2.

Commercial sales service

Category 3.

Industrial sales service

For an MGE Distribution System Capacity Deficiency

Category 1.

Sales or transportation service to residential customers, public housing authorities, public schools, hospitals, and other human needs customers receiving firm sales service from the Company Category 2.

Commercial sales service and commercial transportation service

Category 3.

Industrial sales service and industrial transportation service

13.04 CURTAILMENT PROCEDURES: Notice shall be given to all affected LVS customers by telephone or in writing. Notice shall be given to all other affected customers via mass media (radio and television). Notice shall be given as far in advance as possible and may be changed by the company as conditions warrant.

Curtailment shall be assigned initially to the lowest priority category (Category 3) and successively to each higher priority category as required. Should partial service only be available to an affected category, deliveries to individual customers shall be limited to the customer's pro rata share of available supply, such allocation to be based on the ratio of the customer's requirements in the category for which partial service is available to the aggregate requirements of all the Company's customers in the same category.

13.05 UNAUTHORIZED OVERRUN DELIVERIES: If during any period of curtailment, any customer takes, without the Company's advance approval, a volume of gas in excess of the volumes authorized to be used by such customer, said excess volumes shall be considered "unauthorized use" and will be billed pursuant to the Unauthorized Use Charges as set forth in the Company's approved tariff.

000033

ie.

APPENDICES

[]]GHLY CONFIDENTIAL

APPENDIX A WILLIAMS GAS PIPELINES CENTRAL NO-NOTICE ANALYSIS

Highly Confidential
APPENDIX B PIPELINE EXPANSION PROJECT PRESENTATIONS

WILLIAMS GAS PIPELINE PRESENTATION





 A L L A M S G A S P L P E L I N E WE TE L I N E WESTERN Frontier Pipeline Western Frontier Pipeline The National Petroleum Council Has Estimated the Following Amounts of Recoverable and Potential Gas Reserves Gulf Coast 182.3 Tcf with 58% Produced - Midcontinent 292 Tcf with 54% Produced - Gulf Off-Shore 331.8 Tcf with 30% Produced - Rockies 329.8 Tcf with 15% Produced - Rockies 329.8 Tcf with 15% Produced Reserves Strongly Support the Western Frontier Reserves Strongly Support the Western Frontier Project 	
---	--

ſ,

______ _____

. . .







, South Dakota Nebraska Western Frontier Pipeline Express CHEYENNE HUB B cosit Cheyeans 1 SURANIE ίπ, Frontrange PSCO Lateral ----- Pogy Express (KN) ---- Trailblazer Pipelino ---- MGTC, 8nc. ELINE ---- MICG, Inc. FORT UNIONALCC 「日本になった b I p Wyoming BigHorn Gas Gathering, LLC. Colorado Interstate Gas Company Wyoming Interstate Gas Compony Colórado CARDON . . ----- Northern Gas Company (KN) : Williston Basin Interstate GAS Fr. Union Header, LLC. CSHARKET XN Energy, Inc. A M S SHERETHA LER SOMMOS JON State of the state 法院海道に States and a second N 000046 Í

Frontier Pipeline	imate Doubled to 25 TCF	to 1,500 MMcf/d by 2006 ward	Fort Union Expansion (434 to 634 MMcf/d) Thunder Creek (450 MMcf/d) Considering Expansion	MDth/d) 56 MDth/d	» Capable of Maximum Expansion 2,000 MDth/d with Compression
WILLIAMS GASPIELIN Western Frontie	 Powder River Basin Recoverable Reserve Estimate Doubled to 25 TCF 	 Production Increases 400 to 1,500 MMcf/d by 2006 Infrastructure Expansion Big Horn Expansion Westward 	 Fort Union Expansion (434 to 634 MMcf/d) Thunder Creek (450 MMcf/d) Considering I 	WIC Medicine Bow (380 MDth/d) Expand Incremental 556 MDth/d	» Capable of Maximum Compression

14,410 By 2005 3,060 2,5503,450 1,2252,4001,025Western Frontier Pipeline $\overline{700}$ Projected Number of Wells to be Completed) Powder River Well Completion Major Producers A M S G A S P I P E L I N E To-Date 400 ,641 400 442 200 00 06 Barrett/Western Total Coal-Bed Methane Wells Pennaco/CMS Yates/Phillips Redstone Devon Others Prima 000045

Cheyenne Hub Capacity Balance (MDth/d) Western Frontier Pipeline 2,361 up to 3,425 P | P E L | N E £90 905 (,815 936 125 425 270 50 40 785 50 Hub Total Into Hub Medicine Bow AMSGAS Pony Express Trailblazer KN Weld Out Front Range DJ Basin Total C PSCO WIC CIG CIG M I T T I 000049



WILLIAMS GASPIPELINE Western Frontier Pipeline	 Rocky Mountains Production Environment Economy Threatened by High Energy Prices 	 Focus on Energy Policy Political Environment 	 New Administration Supportive of Energy Industries Vice President from Wyoming 	 Secretary of Interior from Colorado (Gail Norton) FERC 	 New FERC Chairman Curtis Hebert, Jr. Energy Development Oriented 	- Vacant Board Seat to be Filled with Person More Energy Development Oriented
N						000051



Western Frontier Pipeline Ш PLPELIN LLIAMSGAS

N

Environmental Impact on Production Environmental Approvals Streamlined

Water Permits Easier to Obtain

- Increased Access to Federal and State Lands

Natural Gas Production Increases

FERC Approval, and Complete Construction **Diversity and Reliability Also Promote Sense** Service within Three Years to Accommodate Mid-Continent Growth and Issues of Supply All Powder River Projects Are Placed into Requirements, Prepare FERC Filing, Gain Project Support is Required Now to Meet Western Frontier Pipeline Future Need Due to Project Planning L L I A M S G A S P I P E L I N E Additional Supply of Urgency



Western Frontier Pipeline Ш Z P'E L n d A M S G A S

Cost Effective - Transportation and Fuel **Customer Requirements**

- Storage Access - Ease of Use (Nominations & Scheduling) Market Liquidity & Flexibility

lliāms.



Western Frontier Pipeline PELINE ۵. G A S A M S

- Route Cheyenne Hub/DJ Basin/Hugoton, Western Frontier Pipeline Project KS/Oklahoma

- Maximize Efficiency of Facilities

• 400 Mile 30" Diameter Pipeline

• Higher MAOP and Operating Pressure

Minimize Horsepower Requirement • 15,000 HP Proposed @ Cheyenne Hub

- Maximize Market Opportunity

- Basin Flexibility



CLINC Williams. Potential Markets along Western Frontier Pipeline - Oklahoma Intrastates (TransOk, Enogex, ONG) Western Frontier Pipeline • Natural Gas Pipeline of America (NGPL) NE , , • Pan Handle Eastern (PEPL) - Williams System Markets GASPIPELI • Northern Natural (NNG) Pipeline Hub Market Liquidity • ANR A M S 000059

W L L I A M S G A S P E L I N E Western Frontier Pipeline	 Elexibility Transport to Western Frontier Markets or Hugoton Interconnect at Lower Rate Transport on Pipeline Hub to Off-System Market & Central's Oklahoma System Negotiable Rate on Williams Central System Seamless Transportation Service on Williams Future Expansion
	000053



Williams is Aggressively Pursuing Economic • Third Party Storage - S.P.S. and Transok Storage Development and Expansion

· Central's System Storage Capacity 42 Bcf

- Midcontinent Location

Storage Opportunities

Frontier or Williams' Central Delivery Points

Seamless Transportation to any Western

– Williams 1Line System (Scheduling)

• Ease of Use

יי כל נות פ

[]

a contraction of the second second

Western Frontier Pipeline

LLIAMSGASPIPELINE

×

00060







P | P E L | N E G A S A M S Š

\mathbb{B} Western Frontier P

יירווה

Receipt Volumes from Interconnecting Pipelines (intra- & interstate)





Williams. Williams Central Service Areas Power Generation Winter Capacity (MW) Western Frontier Pipeline 5,318 15,394866 2,604Future 24,182P I P E L I N E -- 'K Active 6,803 1,808 439 1,809 019V G A S Total Oklahoma M S Colorado Missouri Kansas A

				• • ·	
WELLIAMS GASPIELINE Western Frontier Pipeline	 Williams Central System Ramifications of LDC and Power Generation Growth 	 Storage Injection and Power Generation Compete for Available Supply Upward Pressure on Prices 	Direct Supply Quantity and Diversity Critical Storage Capacity Increases in Importance	 Reducing Energy Costs to End User Critical in Meeting End User Throughput Needs 	- Firm Transport Increases in Value







Williams. • RESULT: Supply > Demand = Lowering Pressure on Western Frontier Pipeline Dramatic Increase in Production (>1.0Bcf/d) Current Average Differential ~ \$0.44 - Fully Maximizing Take Away Capacity - Limited Powder River Production P I P E L I N E - Limited Expansion Capabilities Rockies Supply/Demand Differential Pressures Price of Gas. AMSGAS Current Future

· · · · ·

Williams. RESULT: Demand > Supply = Increasing Pressure on Dramatic Increase in Power Generation Supply Requirements Western Frontier Pipeline ľ Differential Pressures (Continued) - Developing Power Generation Facilities Slow or Stagnant Supply Development - Mid-Continent Supply/Demand - Fully Utilized Portfolio of Supplies Ш P I P E L I N - Growing System Load (>1.0Bcf/d) Current AMSGAS Price of Gas. Future



 $i \cdot l$

· | | |

Western Frontier Pipeline

WILLIAMS GAS PIPELINE

- Environmental and Special Interest Groups
- Governments and Governmental Agencies

- Landowners

Senior Management Expenditure Authorization

Extremely Successful Non-Binding Open

Season

(http://westernfrontier.williams.com)

Western Frontier Website Available

Project Activities Completed

• Land Offices in Denver, CO and Garden City, KS

Implemented Communication Program

Senior Management Total Support of Project

- Communities


Western Frontier Pipeline P | P E L | N GAS A M S

and the second se

And the second se

- Control Survey completed in February, 2001 Current and Future Activities
 - Aerial Photography
 - Initiated
- To Be Completed as Weather Permits
- Detailed Land Survey to Begin in March, 2001 - Biological and Archeological Study to Begin in April, 2001
- Business Development Pursuing Execution of
 - Precedent Agreements

Western Frontier Pipeline LLIAMSGASPIPELINE N N

Value of Western Frontier Transport

– LDC Heating Needs
– Power Generation
– Storage Injection

Take Advantage of Basis Differential Industrial Users

- Release Capacity Market

William's.

William's. Excellent Reputation and Established Relationships Facilitate with Customer Meeting March 15th-16th Additional Williams and Western Frontier Western Frontier Pipeline Williams Knows the Midcontinent Conduit for Win-Win Relationships - Benefits of Williams Knowledge WILLLIAMS GASPIPELINE Tremendous Presence - Marketers - End-Users Suppliers Benefits

.





William's. 2 + 2Pipeline Lacks Ability to Hedge Subscription Risks - Investment in Up-Front Manpower and Expenses - Assuming All Risk of Project Beyond First 10 Western Frontier Pipeline - Environmental and Regulatory Risks **Ailliams Current Risk Exposure** PIPELINE - Construction Risks Years of Project ILLIAMS GAS ~

P I P E L I N E LLIAMSGAS

Western Frontier Pipeline

- Greater Rewards for Further Risk Assumption Williams Risk-Reward Expectations

-Assumption of Uncontrollable Risk at a Higher Premium

Any Proposal Must Demonstrate Additional Direct Value for Williams Williams.





.) // .

Western Frontier Pipeline



540,000 Dth/day
100% LF Rate to Hugoton is \$0.25
100% LF Rate to pipeline hub is \$0.30
Anticipated Fuel 1%
Binding Agreement Early 2001
Targeted In-Service date of Nov. 2003

iliams.

KINDER MORGAN ENERGY PARTNERS, L.P. PRESENTATION

· · ·] · ·]

000083-





Coal Bed Methane 440 MDth/d => 1,300 MDth/d by 2003 Powder River Basin



- Conventional gas production has been declining since early 1980s
- Coal bed methane development began in the early 1990s
- Current estimates of 25+ BDth of recoverable CBM reserves
- Current production = 440 MDth/d from 4,000 wells
- 2,200 wells shut-in
- Expected production = 1,300 MDth/d by 2003

Sources: University of Wyoming Institute for Energy, Wyoming State Oil & Gas Commission 2

KINDER MORGAN

Confidential – For Discussion Purposes Only

Powder River Basin

Gathering Infrastructure in Place to Match Increased Production



- Conventional infrastructure fairly extensive
- New infrastructure has developed to take CBM gas to Glenrock
- MIGC: 160 MDth/d
 Thunder Creek: 450 MDth/d
 Fort Union: 450 MDth/d
- Plans for additional capacity Fort Union: 188 MDth/d
- Total capacity: 1,248 MDth/d



Cheyenne Hub Soon to be Over Supplied

- WIC Medicine Bow expansion brings 1,055 MDth/d to Cheyenne on 11/01
- Total supply sources at 2,650 MDth/d
- Total take-away at 2,066 MDth/d (Includes TPC expansion of 324 MDth/d on 7/02)
- Take away short fall = 584
 MDth/d
 S





ഗ

KINDER MORGAN

To Address the Cheyenne Hub Over Supply Proposed Eastward Expansions

- Coastal Connection
- » Cheyenne to Greensburg
- 36" pipe, 540 MDth/d
- Williams Western Frontier
- Cheyenne to Hugoton
 - > 36" pipe, 540 MDth/d
- Advantage Pipeline
- Cheyenne to Midcontinent/KC
- > 24" pipe, 323 MDth/d





KINDER WORGAN

Transportation and Storage Types of Service

- Firm/Interruptible Transportation Threshold Pricing, 100% Load Factor:
- Cheyenne Hub to NGPL/NNG

1.10%

FL&U

Price

2.30%

\$0.35 /Dth

\$0.27 /Dth

- Cheyenne Hub to Kansas City
 - take off
- Storage Service Threshold Pricing 3

1.70% Inj. \$0.43 /Dth <u>Storage</u> 75-Day (e.g., 1 Turn)

FL&U

000091

2.42% \$0.083 Transportation From \$0.00 입

 ∞

KINDER MORGAN

- "Advantages of Advantage"
- Competitive pricing
- Smaller volumes needed to support project (323 MDth/d versus 540 MDth/d for others)
- competitor pipelines delivery into field zones Provides access to market zones on some Midcontinent interstate pipelines versus

Less facilities required and routed along existing ROW 000092

σ

