A MULTI-CLIENT STUDY ON NORTH AMERICAN NATURAL GAS INFRASTRUCTURE

THE PRICE OF RELIABILITY:
The Value and Strategy of Gas Transportation

OVERVIEW

Pipelines and storage facilities affect the bottom line of virtually every player in the gas market. The availability and pricing of pipeline and storage capacity influence spot prices, the cost of service to customers, the ability of merchant power companies to build new electric generation capacity, and company merger values. And the value of pipeline and storage assets will be subject to greater risk in the next half dozen years than in any previous period in history. Those firms that have in-depth understanding of these issues will have a distinct advantage over their competitors.

The Price of Reliability: The Value and Strategy of Gas Transportation, a new multi-client study from PIRA Energy Group, gives subscribers the detailed data and analysis needed to make informed, profitable decisions. PIRA's experienced gas consultants examine the fundamental forces that affect the gas pipeline system across North America. This multi-client study provides insight into the markets for pipeline assets, new infrastructure investments and spot market basis. Subscribers will be able to utilize this analysis to assess the likely future financial performance of their natural gas asset portfolio, including trading activities, basis management, firm capacity commitments, acquisitions, expansions and power project development.

IMPORTANT DATES:

February 25, 2000
Deadline for charter discount on California/Southwest regional study and hotel discount for workshop.

March 20, 2000
California/Southwest workshop (Phoenix, AZ).

March 31, 2000
Deadline for charter discount on Southeast regional study.

PIRA believes that there are three strong reasons to take a comprehensive look at infrastructure:

1. The value of pipeline service cannot be known without understanding the competition
2. The competition cannot be known without understanding the region
3. The region cannot be known without understanding the entire North American grid

This type of fundamental analysis — which is the hallmark of PIRA's natural gas market services — provides the foundation for a detailed assessment of gas infrastructure. This enables PIRA to address the three markets for infrastructure: 1) the primary market for transportation (the firm capacity market); 2) the secondary market for transportation (capacity release, which sets basis); and 3) the asset market for transportation (buying and selling fixed assets).

In the following pages of this prospectus, you can gather more information about ***The Price of Reliability***. Specifically, who can benefit from the service, what is PIRA's approach and methodology in covering this industry, what you receive for your subscription and its fee, and what the ordering options are.

AN ESSENTIAL SERVICE FOR THE ENERGY INDUSTRY

The stakes are high when making decisions regarding natural gas infrastructure. Energy market participants can be on either side of million-dollar gains or losses in the transportation and storage market. In order to maximize your profit potential while staying ahead of the competition, a comprehensive understanding of the pipeline and storage landscape is an essential.

Who Can Benefit From *Price of Reliability:*

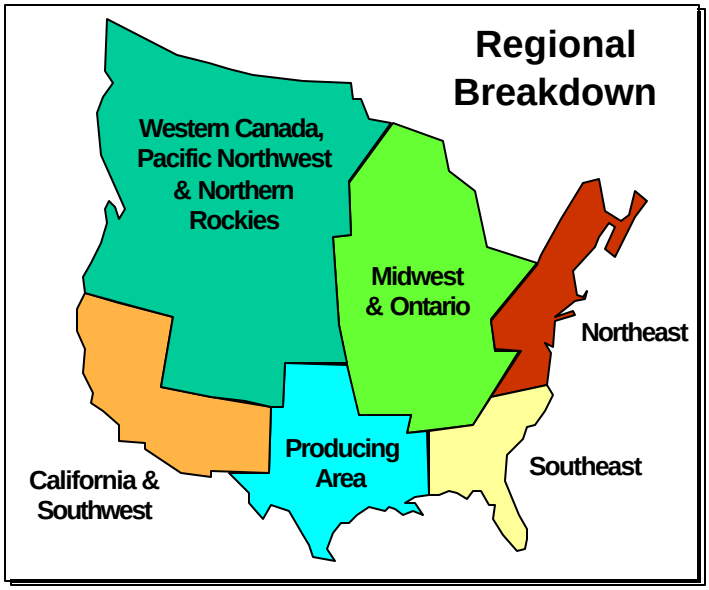
- **Local Distribution Companies:** Local distribution companies are facing choices regarding the purchase of new pipeline capacity or renewal of existing arrangements. The shifting availability of pipeline capacity on a regional basis will impact the value of firm capacity. ***The Price of Reliability*** will assist in the evaluation of the need for this capacity and the terms under which it is available given competitive forces.
- **Pipeline Companies:** Companies that anticipate constraints and surpluses in pipeline corridors will have a strategic advantage when valuing existing assets, targeting potential acquisitions and planning expansions. Competitive challenges and opportunities become clear with ***The Price of Reliability's*** detailed baseline evaluation of the market for gas transportation.
- **Marketers:** Gas and electricity marketers need to be fully informed about infrastructure constraints and costs. The value of a marketer's product will be affected by the scarcity of transportation, while regional marketing strategies and trading desk risks are also affected. Gas transportation bottlenecks impact electric generation, and marketers in both gas and electricity will need competitive intelligence in order to evaluate opportunities.
- **Gas Producers:** The ability to access markets will be a key element in targeting exploration and production regions and increasing profitability. ***The Price of Reliability*** helps producers understand which regions will be pipeline-capacity constrained and the impact on basis differentials. This information will support planning and maximize the return on assets.
- **Electric Generators and Other End-Users:** Expanding generating companies and other pipeline transportation customers must have access to natural gas. ***The Price of Reliability*** supports pipeline service choices, as well as siting decisions, through a rigorous analysis of pipeline options and availability. End-users will be able to plan for market shifts, rather than respond to crises. New project developers will be equipped to evaluate fuel supply availability and project viability.
- **Financial Institutions**: As financial institutions are called upon to provide debt for new pipeline and electric generation facilities, it will be imperative to analyze accurately the market environment for these new projects. Lending to the power sector requires a thorough understanding of the natural gas infrastructure that will support the gas-fired facilities being built to compete in the deregulated market. Understanding regional markets, growth potential and constraints will be essential for due diligence.

APPROACH AND METHODOLOGY

NORTH AMERICAN AND REGIONAL FOCUS

This study is divided into six regional components. Each of the six regional reports in the ***Price of Reliability*** series provides two levels of analysis — a North American grid assessment and a detailed outlook for that region. The approach relies on PIRA's fundamental market analysis, starting with gas supply and demand in the U.S. and Canada, and then focusing in on region-specific details. An assessment of the overall North American gas transportation market establishes the environment for regional analyses. The North American assessment analyzes natural gas supply, demand, storage and flows in the U.S. and Canada. Each region will be examined in pipeline-by-pipeline detail.

PIRA has defined regions with common infrastructure and market issues. In the Midwest/Ontario region, for example, new construction will disrupt gas flows and basis relationships in an established market area. The construction of eastbound "crossover" pipelines may mitigate the impact of the new pipelines entering the Midwest/Ontario area. In the Northeast, suppliers from Sable Island, overseas LNG projects and traditional North American supply basins are lining up to satisfy demand growth in electric power generation. Surplus capacity from the Southwest to California may be absorbed as demand grows in western markets. However, new supply from the Rocky Mountains and western Canada may maintain surplus capacity for an extended period. In the Southeast, burner-tip fundamentals are strong — population growth, economic growth and electric power growth all point to a rising need for gas pipelines, or alternative sources of gas. The region of Western Canada, Rocky Mountains and the Pacific Northwest represent a dynamic supply source which has ongoing market access issues. Finally, the producing areas in the Gulf of Mexico and Midcontinent face major questions of supply growth, with strong implications for the use of pipelines which carry gas to market from the region.



ANALYTICAL FRAMEWORK

PIRA takes the analytical approach of recognizing the various inter-relationships between four key factors. Understanding these fundamental issues and value drivers is critical.

- **New Competition:** How does it impact your market? For example, Canadian pipelines to the U.S. Midwest affect gas prices, raising them at some price points and lowering them at others — even at locations hundreds of miles away from the new pipes being developed in the region.
- **Supply Changes:** Declining supply has hurt the value of pipeline capacity from some supply basins, but raised the basis for sellers.

- **Storage Shifts:** The addition of a new storage facility in a market area can subtract millions of dollars of revenue per year from pipelines serving that region.
- **LNG Imports:** Imports of LNG —analysis of which is a PIRA strength — can significantly enhance or diminish the value of major pipelines, depending on which import terminal is used.

The Price of Reliability then uses a scenario framework to weigh the factors that impact supply and demand and hence the value of infrastructure. The market is first examined across all of North America and then analyzed in greater detail on a region by region basis.

Supply and Demand

Historic supply, demand, storage and flow data from the 1990's and PIRA forecasts through 2010 will be utilized to create a state-by-state and province-by-province profile. The detailed regional forecasts will be based on PIRA's exclusive North American natural gas forecast. Electric power demand for gas will be based on PIRA's electricity production model. Issues that affect infrastructure needs, including seasonality, will be considered, and sensitivities to environmental policies will be explored.

Deliverability Through the Coming Decade

PIRA performs a by-state analysis of gas flows and capacity, incorporating specific pipeline and market characteristics, to generate a regional deliverability profile. Based on the by-state demand and supply forecast, current deliverability and near-term construction, PIRA will perform a "gap analysis" to identify tight regional markets, potential constraints and likely locations of new pipeline capacity.

Value of Infrastructure

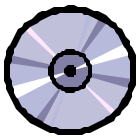
The value of pipeline and storage services will be assessed at three levels: 1) the primary transportation market (firm capacity); 2) the secondary transportation market (interruptible and capacity release markets, which set spot basis); and, 3) the asset market for infrastructure.

Scenarios

Reference, High and Low scenarios will be created to test key variables and the importance of these on pipeline valuations and basis. The scenarios are independently adjusted in each five-year interval. An array of factors that affect the value of transportation services will be examined in this way.

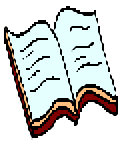
BASIC SERVICE DELIVERABLES

For each region, Clients benefit from a set of valuable services:



SOFTWARE. Clients receive three (3) copies of a software system that integrates state and provincial natural gas data. Using a computer-generated map of North America, clients can define their own regions to include any set of states or provinces. Historical and forecasted data for gas demand, supply, storage changes, and flows can then be viewed for these regions. The software and database help users create flow models, saving many weeks of work.

WORKSHOP. Upon completion of each regional analysis, PIRA will host a workshop to discuss the results. Three (3) participants from each Client organization will be invited to the workshop, which includes a presentation and Q & A session. Before each workshop, an interim report will be issued. Clients ordering the study after the workshop has taken place may purchase a **CD-ROM version** of the presentation, which will not include any Q&A.



REPORT. Clients will receive three (3) copies of the final report, which is 40-60 pages in length and spells out the findings of the pipeline infrastructure analysis and recaps the workshop's content. The report also details the "Reference Case" relating to the overall North American market regional analyses. High and low alternative cases are described as well. The regional findings will be based on an analysis of fundamentals and topics addressed in the report and will include regional supply and demand issues, proposed pipelines and additional pipeline needs and basis.

The workshops and reports will be completed in a timely manner to provide maximum value to Clients' planning activities. The regional analysis covering the Midwest/Ontario and the Northeast were presented at workshops in September 1999 and January 2000, respectively (CD-ROMS are available for both). The next region covered will be California/Southwest, with a workshop scheduled for March 20, 2000 in Phoenix, AZ. Subsequent regional analyses will be completed at roughly two-month intervals. For those clients who need detailed coverage beyond any one specific region, note that ***The Price of Reliability*** is available in any combination of regions, with discounts available for such combinations.

The Price of Reliability **Schedule**			
Region	**Workshop Date**	**Location**	**Report Date**
Midwest and Ontario	September 1999	Chicago	December 1999
Northeast (Virginia to Eastern Canada)	January 2000	Boston	March 2000
California and the Southwest	March 20	Phoenix, AZ	May
Southeast (Florida to North Carolina)	May	Hilton Head, NC	July
W. Canada, the Pacific NW and No. Rockies	July	Jackson, WY	September
Producing Area (Gulf Coast and Midcontinent)	September	Woodlands, TX	November

CUSTOM SERVICE DELIVERABLES

PIRA will also work with clients to develop a scenario based on the Clients' assumptions relating to global North American issues as well as specific regional concerns. A new simulation will be generated based on these Client-driven inputs. The custom simulation will detail supply, demand, gas flows and basis. A modified report and software will be created, and a private workshop conducted.

SUBSCRIPTION COSTS

Companies may subscribe to any single regional service or a combination of regions. Existing PIRA Retainer Clients will receive a discounted price on all packages. In addition, Retainer Clients that enroll in their first regional *Price of Reliability* study before that region's **Charter Deadline** will become Charter Subscribers and will receive a 10% discount on the subscription cost. Subscription fees for **multiple regions** are discounted further for all subscribers. **See the Acceptance Form for Basic Service pricing.**

Custom Service expands the analysis to focus on Client-specific value drivers and will be structured to those requirements. Custom analysis may include a new supply, demand and infrastructure scenario based on Client specifications and a simulation based on this demand forecast. Fees for Custom Services will be negotiated based on work required.

ABOUT PIRA ENERGY GROUP

The PIRA Energy Group, founded in 1976, is an international energy consulting firm, offering Retainer Client Services as well as customized consulting on a broad range of subjects in the international oil, natural gas and electricity marketplaces. PIRA provides evaluation of key U.S. and international energy issues that impact the behavior and performance of the industry and its various markets and sectors. Currently, more 270 entities in more than 20 countries subscribe to PIRA Client Services, including international and national integrated oil and gas companies, independent producers, refiners, marketers, oil and gas pipelines, electric and gas utilities, industrials, trading companies, financial institutions and government agencies.

The Price of Reliability Group*:*

Thomas A.Z. Howard **(Director, Strategic Products)** oversees research on the economics, regulation and pricing of natural gas in North America, including the PIRA Strategic Product *Gas Supply in the Offshore Gulf of Mexico*. While at PIRA, he has written numerous studies including *David and Goliath in the Boiler Room,* and *The Event of the Year: Foothills/Northern Border and Basis*. Dr. Howard has also performed proprietary studies for Clients, including assessments of corporate strategy and valuing assets for mergers and acquisitions. Before joining PIRA, Dr. Howard was affiliated with the Energy Economics Group of Arthur D. Little, The Fuji Research Institute and Yale University. He received his undergraduate degree from Dartmouth College and earned a Ph.D. in Economics from Yale University.

Gregory J. Shuttlesworth **(Managing Director, Natural Gas)** directs PIRA's natural gas research activities, specializing in North American market fundamentals. He focuses on the varied factors influencing the supply and demand of North American natural gas, price forecasting and the inter-fuel competition. Mr. Shuttlesworth has also worked at Chevron Corp. and Chase Manhattan Bank's Energy Economics Division. He has a BA from Johns Hopkins University and an MBA from Fairleigh Dickinson University.

Allan M. Stewart **(Managing Director, Electricity Group)** directs the group that is responsible for the preparation of a comprehensive series of commercially oriented assessments of North American electric markets. Prior to joining PIRA, Mr. Stewart worked with the Consolidated Edison Co. of New York in a variety of senior positions. He received his undergraduate degree in Civil Engineering from the State University of New York at Buffalo and an MBA from Adelphi University.

Cliff Lawrence **(Managing Director, Information Technology)** is redesigning PIRA's databases and on-line systems and building new energy modeling programs. With over 25 years experience, Mr. Lawrence has covered the energy industry both as an analyst and software developer. He has worked for Alberta Energy Co., Charles Owens and Associates, Swanson Energy Group, the U.S. Department of Energy and software consulting firms CACI and CCA. Mr. Lawrence earned his BS in Economics from the Massachusetts Institute of Technology.

ACCEPTANCE FORM

Basic Service:

(Company Name) _____ subscribes to ***The Price of Reliability: The Value and Strategy of Gas Transportation*** and understands and agrees that:

- The fee for the first region subscribed to is:

Non-Retainer Client	Retainer Client	Retainer Client, Charter Rate
$9,500	$8,000	$7,200

- PIRA Retainer Clients who subscribe before each region's Charter Deadline will be entitled to a 10% Charter Subscriber discount. **The Charter Deadline for each new region is as follows:**

CA & SW*	Southeast U.S.	W. Can., Rockies & PNW	Prod. Region
Feb. 25, 2000	March 31, 2000	May 31, 2000	July 31, 2000

*** Contact the Arizona Biltmore, at (800) 950-0086 or (602) 955-6600, to reserve a room. (The cutoff date for a special PIRA room rate is February 25.)**

- The fee for **each additional region is $5,000 for PIRA Retainer Clients and $6,500 for non-clients.** Note: The Midwest/Ontario and Northeast regional reports can also still be purchased, along with a CD of the workshops. For four regions or more, please contact PIRA for a custom quote.

Custom Service:

Fees for Custom Services will be negotiated based on work required. Please contact PIRA.

Name/Title: _____

Company: _____

Address: _____

Phone/Fax/e-mail: _____

Region(s): ❑ Midwest/Ontario ❑ Northeast ❑ California/Southwest
❑ Southeast ❑ West. Canada./Pacific NW/No. Rockies ❑ Producing Area

Total Fee: _____

Signature: _____

PLEASE MAIL OR FAX TO:

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Phone: (212) 686-6808; Fax: (212) 686-6628; jsteele@pira.com

Note: *Price of Reliability* will contain no confidential technical information, to the best knowledge of PIRA. However, except for information which is or becomes available to the public in printed publication, or is already in the possession of subscriber or developed independently by subscriber, or is received by subscriber in good faith from a third party, any information in the study is for the sole and confidential use of the subscriber. Subscribers agree to use reasonable efforts to protect the confidential nature of the information supplied to them as part of this study.