



North American Natural Gas Retainer

Since 1981, PIRA’s North American Natural Gas Retainer Service has been a comprehensive and timely offering that keeps clients on top of U.S., Canadian, and Mexican market developments with fundamentals analysis, market intelligence, and superior client service. Subscribers have a competitive edge when it comes to selling and buying natural gas, as they are regularly kept abreast of supply, demand and price movements — actual and forecast, at a regional level — of natural gas in North America.

Components of the Natural Gas Retainer:

Like all PIRA retainer services, the North American Natural Gas Service is comprised of a set of deliverables, which are design to collectively provide the best method to keep clients informed of market developments and trends. These include:

North American Gas Forecast Monthly

Sent to clients monthly in advance of Bidweek, this report provides North America gas price forecasts 12-18 months out and supporting market fundamentals. A timely analysis of changing U.S. gas demand drivers features the economy, heating/cooling degree days, coal-gas competition in the electric generation (EG) sector and statistical indicators of future industrial gas demand. On the supply side, shale gas and other unconventional production are highlighted. Updated Henry Hub gas prices projections and Excel spreadsheets of supply/demand and price are included as well as:

- 1) An executive overview of new and emerging price drivers.
- 2) A bullet-by-bullet summary of major discussion topics.
- 3) A “Price Scorecard” underscoring the rationale behind each factor’s bullish, bearish or neutral designation.

North American Gas Trade Monthly

Following our *Gas Forecast Monthly*, this report starts with an overview of PIRA’s net U.S. gas trade forecast. The next three sections assess the key issues that will determine future trade flows. For both Canada and Mexico, gas demand and domestic production forecasts are carefully assessed. For LNG, forecasts of imports and exports are explained in the context of global gas balances. Excel spreadsheets also provide economic and supply-demand details.

North American Gas Forecast Monthly
August 26, 2010

North American Gas Price Scorecard
October 2010 - March 2011

With peak temperatures now past, attention has shifted to the seasonal gas demand lull amid the transition from space cooling to heating. As the September 4th anniversary of that year’s price trough approaches, some NYMEX traders appear to be banking on a repeat, when supply overwhelmed demand heading into the final weeks of the injection season. On the surface at least, those expectations appear to fly in the face of a Y/Y storage deficit of -0.2 TCF and -0.1 TCF of added capacity.

But those issues have generated little, if any, impetus to bullish price momentum. Indeed, the extremely narrow NYMEX contango between the front-month and winter futures contracts belies the bearish price action at work. Narrow summer/winter spreads in place throughout the summer — which have closely resembled 2008 as compared to 2009 — have reflected not only ample available storage capacity, but selling pressures that have been undermining longer-dated NYMEX contracts as well.

Those selling pressures in particular have been driven by an expanding onslaught of negative macro-economic indicators amidst a seemingly unrelenting advance in horizontal gas drilling — an issue that we have labeled the market’s “300-pound gorilla.” Simply put, any future sustainable gas price rally appears predicated on a meaningful pullback of gas-oriented drilling as opposed to temporary supply losses associated with potential Atlantic Ocean hurricane activity.

With NYMEX futures already down to values not seen since the start of the injection season — when demand was being undermined by both seasonal weakness and an extreme shortfall of heating degree days — the renewed price weakness stands to stimulate electric generation (EG) gas demand. And any such extra demand on top of the surprisingly strong recovery of industrial gas demand and purchasing for storage should provide realistic support to the physical market.

But the past month or so has demonstrated that a balanced physical market alone will not be enough to shelter gas prices from additional bearish momentum. In the coming weeks, we would not be surprised to observe wider NYMEX front-month-to-winter-month contango, especially to incentivize storage.

PIRA ENERGY GROUP
August 17, 2010

North American Gas Trade Monthly

BCFD	May-July 2010		August 2010		September 2010		October 2010	
	Supply	Y/Y Chg.	Supply	Y/Y Chg.	Supply	Y/Y Chg.	Supply	Y/Y Chg.
U.S. Net Trade	6.82	+6.37	7.59	-0.44	6.42	-0.85	5.60	-0.98
Canadian Imports	6.74	+9.61	7.83	-0.21	6.74	-0.73	5.34	-0.66
Mexican Exports	0.08	-0.09	1.04	-0.01	1.13	0.09	1.15	-0.11
LNG Demand	1.05	-0.34	0.80	-0.25	0.80	-0.12	0.80	-0.12
LNG Imports	1.07	-0.49	0.80	-0.32	0.88	-0.37	0.80	-0.87

U.S. net trade equals Canadian net imports plus LNG send-out from rigs terminals less net exports to Mexico.

In the face of widening Y/Y storage deficits, Henry Hub prices have been under relatively consistent downward pressure since the final days of July. This remarkable detachment between near-term fundamentals and gas prices appears to be increasingly driven by the perception that North American gas-oriented drilling is substantially in excess of the future call on production — a conclusion in sync with PIRA’s July 20th 2010 *Early-View Outlook*. In the recent past, Y/Y net import gains have further boosted market bears’ confidence, but those gains should become losses ahead of the 2010-2011 heating season. If so, those net import deficits would add weight to the view that end-October 2010 U.S. gas storage will not surpass year-ago levels, even without future hurricane shut-in supply losses.

Among the major sources of U.S. gas trade, the outlook for net imports from Canada appears to have become the most unsettled. Canadian gas drilling and related non-term production prospects continue to surpass prior expectations, partly in response to an intensifying search for liquids-rich gas plays and the de-bonneting of transportation from British Columbia’s Horn River Basin shale gas play. These invigorated drilling efforts should reduce overall Y/Y declines of Western Canada Sedimentary Basin gas production to -0.3 BCF/D, or less, by the end of the 2010 storage injection season.

At the same time, the surprising emergence of sizable Y/Y storage deficits in eastern Canada have been accompanied by western Canadian storage surpluses also turning into deficits. Although our Reference Case anticipates narrowing storage deficits in the east offset by widening western deficits, plausible alternative storage refill scenarios could substantially alter the pace of exports relative to our forecast.

Meanwhile, U.S. LNG imports have fallen to contractual minimums without major changes expected over the near term. Russian gas production, in effect, should continue to balance the European gas market at the margin, and arguably, the entire global spot market as well. Indeed, changing contractual

Components of the Natural Gas Retainer (continued):

North American Gas Regional Monthly
September 10, 2010

North American Gas Regional Monthly

Although Henry Hub prices have succumbed to renewed downside pressures that have resulted in a return of sub-\$4/MMBtu levels, the environment at other supply points has been more healthful. Even when the benchmark was counting the \$5 mark amidst this summer's heat spells, there was little in the way of any significant and sustained price support throughout much of the western half of the continent. To be fair, regional temperature patterns shoulder some of the blame, especially in the case of the Pacific and thus, the overall Western U.S. While this has contributed to weaker regional gas balances, another key driver has been failure from the growing competition between Canadian and Rockies supply.

Exports from both regions have stabilized, and when combined with the displacement of work in the Northeast stemming from the net production growth sponsored by shale from Marcellus in Appalachia and the other hot plays in the Greater Midcontinent, the West and the Midwest have been forced to absorb the additional supply. With storage levels relatively high in the Consuming West Region, more supply likely will need to be pushed eastward this month and next. In the interim, not only are other regional areas vulnerable to added downward pressures, but so is Henry Hub. This should contribute to a wider NYMEX contango, which would stimulate discretionary storage refills in the Consuming East and the Producing regions, where abundant capacity remains.

Due to growing competition from U.S. supplies, Canadian exports (including those from eastern Canada, v. via Marlines & Northeast Pipeline) to the U.S. Northeast through August of this year have averaged barely 1 BCFD – the lowest level since Inougas Gas Transmission was built in the early 1970s. This is not surprising with the addition of new supply the region has seen recently. First, the completion of the 1.8 BCFD Rockies Express (REX) pipeline that reached the Northeast last year, added over 1 BCFD to its supply mix. This started the decline of Canadian exports to the Northeast West, the aggressive development of the Marcellus Shale has pushed local production up to 1 BCFD this summer. The addition of significant Marcellus production has not only helped to deflect Canadian exports, but has even supplanted some Rockies supply via REX that was arriving earlier this year, as well as displacing supply sourced from the South, including the offshore and onshore Gulf (GOM).

Meanwhile, the upward pressure behind shipping tolls on the TransCanada Mainline line, in part, to the large Alberta production losses, has lowered the competitiveness of Canadian exports. This was underscored by this year's dramatic increase in TransCanada Mainline toll to \$1.60/MMBtu based on current exchange rates as compared to last year's firm transportation rate of \$1.16-\$1.15/MMBtu (including fuel) for flows from Alberta to the U.S. Northeast. This has had a chilling effect on Northeast imports and even on volumes delivered to Eastern Canada. Most Canadian volumes arriving at the U.S. Northeast and/or Eastern Canada now are being imported via Dawn. In addition, this year's

North American Gas Regional Monthly

Following our *Gas Trade Monthly*, this report starts with an overview of the market dynamics expected to impact both Henry Hub and regional gas pricing. Section One examines the key developments that will drive prices in the Northeast (NY Z6, Algonquin, Dominion, Niagara), Midwest (Chicago, Dawn, Midcontinent, and AECO), West (SoCal, Waha, Opal, PG&E), and South (South TX, HSC, Transco St. 85, FGT Z3), using a concise bullet-by-bullet format. Section Two provides charts and related regional descriptions of prices (relative to Henry Hub), storage, drilling, Rockies and Canadian exports, demand, degree days, and gas-fired EG.

PIRA ENERGY GROUP
September 9, 2010

Gas Flash Weekly

The EIA's reported 58 BCF storage build closely matched the street consensus estimate in the high 50s. The market reaction was decidedly tepid and unconvincingly so. NYMEX's October contract closed a few pennies above the estimate before drifting even lower, but these losses were pared near the session's close.

The upward momentum of recent storage injections highlights the seasonal nature of demand support from gas-fired electrical generation (EG). Recording temperatures in the gas-fired EG heavy South and West continued to be an overall EG sector profitback upwards of 1 BCFD W/W, despite a 1% W/W gain of CDDs for the U.S. as a whole. Lower EG demand accounted for nearly all of the W/W uptick in storage refills.

Today's data also added about the books on August U.S. balances, yielding a preliminary unreported and overall storage level of 1.1 TCF. While a relatively high figure, it nonetheless leaves a ~20 BCF deficit in relation to last year's record high mark. The market's attention, though, remains partially focused on the unfolding seasonal build behind U.S. balances absent of the historic season, especially as record record temperatures clear of Gulf of Mexico production facilities. The typical peak in hurricane activity remains in place, and there already have been two strikes. The other focus of attention remains extremely high horizontal gas rig counts and their implications for U.S. gas balances. Based on fresh data from pipeline flows, other external sources and our play-by-play shale gas models, we have revised our dry gas August production estimate upward to almost 50 BCFD. Significantly stronger growth of industrial gas demand relative to our prior estimates is one important implication in the process of re-balancing the market.

ALASKAN PIPELINE CROSSROADS
For over 30 years the Alaska Pipeline Project has been delayed reflecting very long lead times in permit and build and low natural gas prices. But a resurgence of interest stems from two competing projects.

TransCanada announced last month the receipt of multiple bids from major players for large volumes and suggested that results could be disclosed by year-end. However, these bids are conditional and also

Reference Week 8/31/10
EIA - 58 BCF (+58 BCF vs. Ago)
PIRA Projection - 58 BCF
EIA Week Ago - 54 BCF
EIA pct. of Demand

Gas Flash Weekly

This essential deliverable is sent each Thursday after the EIA releases its storage survey. It provides a concise analysis of the results of the numbers and a timely update to PIRA's short-term gas market fundamentals and price outlook. It includes projections of U.S. and Canadian monthly gas balances, production data from PIRA's pipeline scrapes and end-month storage levels as well as identifying weather-related impacts on supply/demand and longer-term changes in storage.

U.S. Gas Rig Monitor

This report captures a detailed summary of weekly U.S. natural gas and oil drilling activity. It is published on Fridays shortly after data are released. The report includes a supporting Excel data file that contains weekly historical rig count data by type, play and basin since January 2010.

Weekly U.S. Propane Stock Report – NEW

Weekly data and commentary on U.S. and regional propane and propylene inventories. The discussion section puts weekly stock changes into perspective. The data section, offered in Excel format, provides the weekly stock levels and changes for the most recent three months, corresponding year-to-year stock levels and changes, and year-on-year comparisons. Graphs are provided to place national and regional stock data as well as demand into context.

Monthly NGL Price Forecasts and Supply and Demand Balances – NEW

An Excel file containing actual and forecast prices and balances for ethane, propane, N-butane, I-butane and natural gasoline.

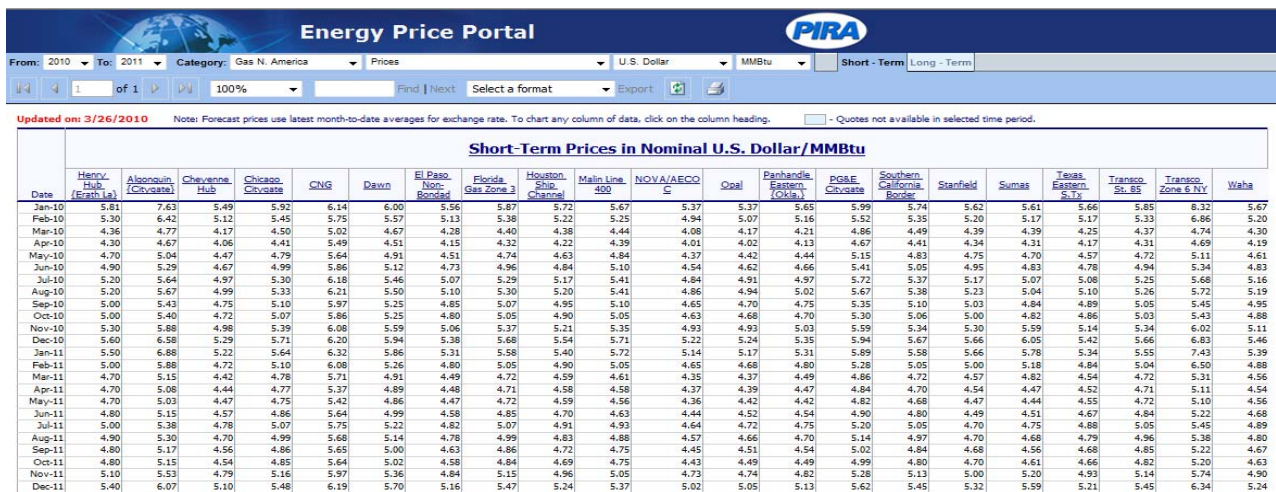
Components of the Natural Gas Retainer (continued):

PIRA Online

Timely and convenient access to short- and long-term price forecasts for U.S. and Canadian gas markets, providing data on supply, demand, drilling, and storage for different hubs, as well as historical data and excerpts from our constantly updated databases.

The Energy Price Portal

A key online feature of the PIRA Online, the Energy Price Portal allows users quick and easy access to PIRA's latest price forecasts, the ability to create and store custom price spreads using the Price Equation Manager and options to view data in 16 different currencies or in different units.



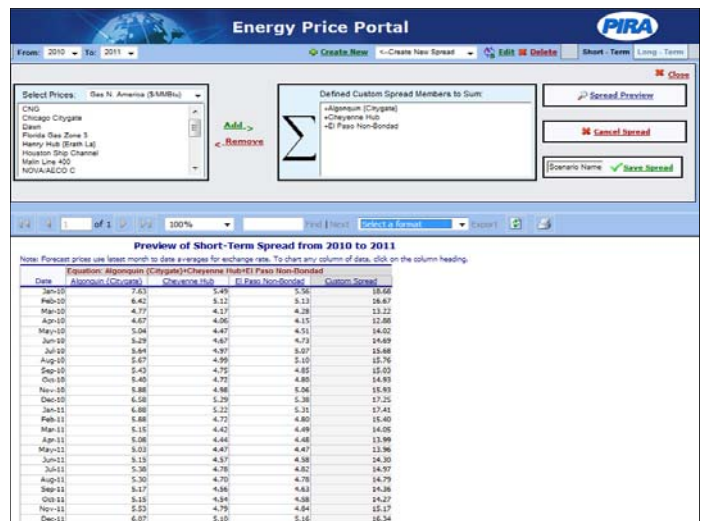
Date	Hennepin Hub (EPA)	Alconquin (Civitate)	Cheyenne Hub	Chicago (Civitate)	CNG	Dawn	El Paso (Non-Road)	Florida Gas Zone 3	Houston Ship Channel	Main Line 400	NOVA/AECO C	Opal	Panhandle Eastern (COKS)	PG&E (Civitate)	Southern California (Rooper)	Starfield	Sumas	Texas Eastern (S-1)	Transco St. 85	Transco Zone 6 NY	Waha
Jan-10	5.81	7.63	5.49	5.92	6.14	6.00	5.56	5.87	5.72	5.67	5.37	5.37	5.65	5.99	5.74	5.62	5.85	5.66	5.85	6.32	5.67
Feb-10	5.30	6.42	5.12	5.45	5.75	5.57	5.13	5.38	5.22	5.25	4.94	5.07	5.16	5.52	5.35	5.20	5.17	5.17	5.33	6.86	5.20
Mar-10	4.36	4.77	4.17	4.50	5.02	4.67	4.28	4.40	4.38	4.44	4.08	4.17	4.21	4.86	4.49	4.39	4.39	4.25	4.37	4.74	4.30
Apr-10	4.30	4.67	4.06	4.41	4.99	4.51	4.15	4.32	4.22	4.39	4.01	4.02	4.13	4.67	4.41	4.34	4.31	4.17	4.31	4.69	4.19
May-10	4.70	5.04	4.47	4.79	5.64	4.91	4.51	4.74	4.63	4.84	4.37	4.42	4.44	5.15	4.83	4.75	4.70	4.57	4.72	5.11	4.61
Jun-10	4.90	5.29	4.67	4.99	5.86	5.12	4.73	4.96	4.84	5.10	4.54	4.62	4.66	5.41	5.05	4.95	4.83	4.78	4.94	5.34	4.83
Jul-10	5.20	5.64	4.97	5.30	6.18	5.46	5.07	5.29	5.17	5.41	4.84	4.91	4.97	5.72	5.37	5.17	5.07	5.08	5.25	5.68	5.16
Aug-10	5.20	5.67	4.99	5.33	6.21	5.50	5.10	5.30	5.20	5.41	4.86	4.94	5.02	5.67	5.38	5.23	5.04	5.10	5.36	5.72	5.19
Sep-10	5.00	5.43	4.75	5.10	5.97	5.25	4.85	5.07	4.95	5.10	4.65	4.70	4.75	5.35	5.10	5.03	4.84	4.89	5.05	5.45	4.95
Oct-10	5.00	5.40	4.72	5.07	5.86	5.25	4.80	5.05	4.90	5.05	4.63	4.68	4.70	5.30	5.06	5.00	4.82	4.86	5.03	5.43	4.88
Nov-10	5.30	5.88	4.98	5.39	6.08	5.59	5.06	5.37	5.21	5.35	4.93	4.93	5.03	5.59	5.34	5.30	5.59	5.14	5.34	6.02	5.11
Dec-10	5.60	6.58	5.29	5.71	6.20	5.94	5.38	5.68	5.64	5.71	5.22	5.24	5.35	5.94	5.67	5.66	6.05	6.42	5.66	6.83	5.46
Jan-11	5.50	6.88	5.22	5.64	6.32	5.86	5.31	5.58	5.40	5.72	5.14	5.17	5.31	5.89	5.58	5.66	5.78	5.34	5.55	7.43	5.39
Feb-11	5.00	5.88	4.72	5.10	6.08	5.26	4.80	5.05	4.90	5.05	4.65	4.68	4.80	5.28	5.05	5.00	5.18	4.84	5.04	6.50	4.88
Mar-11	4.70	5.15	4.42	4.78	5.71	4.91	4.49	4.72	4.59	4.61	4.35	4.37	4.49	4.86	4.72	4.57	4.82	4.54	4.72	5.31	4.56
Apr-11	4.70	5.08	4.44	4.77	5.37	4.89	4.48	4.71	4.58	4.58	4.37	4.39	4.47	4.84	4.70	4.54	4.47	4.52	4.71	5.11	4.54
May-11	4.70	5.03	4.47	4.75	5.42	4.86	4.47	4.72	4.59	4.56	4.36	4.42	4.42	4.82	4.68	4.47	4.44	4.55	4.72	5.10	4.56
Jun-11	4.80	5.15	4.57	4.86	5.64	4.99	4.58	4.85	4.70	4.63	4.44	4.52	4.54	4.90	4.80	4.49	4.51	4.67	4.84	5.22	4.68
Jul-11	5.00	5.38	4.78	5.07	5.75	5.22	4.82	5.07	4.91	4.93	4.64	4.72	4.75	5.20	5.05	4.70	4.75	4.88	5.05	5.45	4.89
Aug-11	4.90	5.30	4.70	4.99	5.68	5.14	4.78	4.99	4.83	4.88	4.57	4.66	4.70	5.14	4.97	4.70	4.68	4.79	4.96	5.38	4.80
Sep-11	4.80	5.17	4.56	4.86	5.65	5.00	4.63	4.86	4.72	4.75	4.45	4.51	4.54	5.02	4.84	4.68	4.56	4.68	4.85	5.22	4.67
Oct-11	4.80	5.15	4.54	4.85	5.64	5.02	4.58	4.84	4.69	4.75	4.43	4.49	4.49	4.99	4.80	4.70	4.61	4.66	4.82	5.20	4.63
Nov-11	5.10	5.53	4.79	5.16	5.97	5.36	4.84	5.15	4.96	5.05	4.73	4.74	4.82	5.28	5.13	5.00	5.20	4.93	5.14	5.74	4.90
Dec-11	5.40	6.07	5.10	5.48	6.19	5.70	5.16	5.47	5.24	5.37	5.02	5.05	5.13	5.62	5.45	5.32	5.59	5.21	5.45	6.34	5.24

Query results for short-term North American natural gas prices

The Energy Price Portal also features PIRA's **Equation Manager**, a specially designed utility that allows users to define, analyze and store up to 100 custom price spreads in the form of multi-variable equations that use PIRA's forecast prices.

With the Equation Manager, for example, users can store individual configurations and use these spread relationships as a predictive tool in forecasting price developments.

In a matter of seconds, users can create and export large data sets in Excel, CSV, and PDF formats as well as have click-of-the-mouse charting capabilities. The Portal's forecast horizons include both short-term (monthly averages to December 2010) and long-term (annual averages to 2025).



Defined Custom Spread Members to Sum:
 +Alconquin (Civitate)
 +Cheyenne Hub
 +El Paso Non-Road

Preview of Short-Term Spread from 2010 to 2011

Date	Alconquin (Civitate)	Cheyenne Hub	El Paso Non-Road	Custom Spread
Jan-10	7.63	5.49	5.92	18.66
Feb-10	6.42	5.12	5.45	16.67
Mar-10	4.77	4.17	4.50	13.22
Apr-10	4.67	4.06	4.41	12.88
May-10	5.04	4.47	4.79	14.02
Jun-10	5.29	4.67	4.99	14.69
Jul-10	5.64	4.97	5.30	15.88
Aug-10	5.67	4.99	5.33	15.76
Sep-10	5.43	4.75	5.10	15.10
Oct-10	5.40	4.72	5.07	15.03
Nov-10	5.88	4.98	5.39	16.93
Dec-10	6.58	5.29	5.71	18.89
Jan-11	6.88	5.22	5.64	17.41
Feb-11	5.88	4.72	5.10	15.40
Mar-11	5.15	4.42	4.78	14.06
Apr-11	5.08	4.44	4.77	13.99
May-11	5.03	4.47	4.75	13.96
Jun-11	5.15	4.57	4.99	14.30
Jul-11	5.38	4.78	5.07	14.97
Aug-11	5.30	4.70	4.99	14.79
Sep-11	5.17	4.56	4.86	14.38
Oct-11	5.15	4.54	4.85	14.27
Nov-11	5.53	4.79	5.16	15.17
Dec-11	6.07	5.10	5.48	16.34

PIRA's Price Equation Manager



North American natural gas prices contained in the Energy Price Portal are listed below:

Appalachia (Dominion [CNG])	Midcontinent (Panhandle Eastern)	Rockies (Opal)
California (PG&E Citygate)	Middle Atlantic (Transco Zone 6)	San Juan Basin (El Paso non-Bondad)
California (Southern California Border)	New England (Algonquin Citygate)	Southeast (FGT Zone 3)
East Texas (Houston Ship Channel)	Pacific Northwest (Main Line 400)	South Texas (Texas Eastern)
Henry Hub	Pacific Northwest (Stanfield)	Southeast (Transco Sta. 85)
Midwest (Chicago Citygate)	Pacific Northwest (Sumas)	West Texas (Waha)
Midwest (Dawn)	Rockies (Cheyenne hubs)	Western Canada (Nova/AECO C)

Other energy-related reports and data available on PIRA Online include:

- Online access to PIRA's regularly updated **macroeconomic data** (currencies, U.S. economy and manufacturing, world economies and air travel).
- **Global Equity Market Performance** — updated weekly, this report tracks the performance of equity markets in countries and regions around the world.
- **Storm Watch** — the latest tracking information from the National Hurricane Center for storms that threaten oil and gas production facilities in the Gulf of Mexico.
- Slideshow presenting **latest available air traffic data** for the total system and international air travel for the U.S. and Europe.

Strategic Briefings

Brings PIRA's senior gas consultants and a client together on a private basis to discuss PIRA's latest thinking and address each client's specific issues, by assessing how the markets impact their business and examining topics of special interest as requested.

Phone/Email Access to PIRA's Natural Gas Group

Clients can obtain timely analytical support and discuss our latest insight on short-term natural gas markets with PIRA analysts, or gather additional market information or data.

Annual Retainer Client Seminar

The Seminar presents PIRA's medium- and long-term view of oil, gas, coal and electricity markets. Excel spreadsheets of world energy forecasts by region and energy source through 2025, as well as the Seminar presentations themselves (audio and visual), will be available via the Web.

Discounts on PIRA's Other Retainers and Multi-client Studies

Clients get significant discounts when adding other retainers (e.g. Global Oil, N.A. Electric Power, European Natural Gas, European Electricity, and Scenario Planning Service) or when purchasing a multi-client study. Recent studies include *The Changing Face of North American Supply*.

Fees

Existing PIRA Retainer Clients may subscribe under discounted terms, which are determined by the scope of their current license. For prices, please contact your PIRA Account Executive.



North American Natural Gas Group:

Gregory J. Shuttlesworth (Executive Director) oversees PIRA's research covering all aspects of North American natural gas fundamentals. His work is aimed at providing PIRA clients with in-depth and timely analysis of how fast-breaking events will impact gas supply and demand, inter-fuel competition, and the outlook for gas prices. He is a principal author of PIRA's Gas Forecast Monthly, Gas Flash Weekly, and Gas Trade Monthly. Before starting PIRA's Natural Gas Group, his professional career centered on global petroleum and related energy economics. He held the positions of Senior Analyst at the petroleum consulting firm of W.J. Levy Associates and Energy Economist at the Chase Manhattan Bank. Mr. Shuttlesworth holds a B.A. from Johns Hopkins University, an M.B.A from Fairleigh Dickinson University and completed post-Masters studies in economics at NYU.

Richard M. Redash (Managing Director) has over 20 years of energy industry experience with current responsibilities centered on fundamentals analysis. He is a principal author of PIRA's Gas Forecast Monthly, Gas Flash Weekly, and Gas Regional Monthly. He leads PIRA's regional gas market coverage and basis analysis. Mr. Redash came to PIRA in 1999 from Prudential Securities, where he was Vice President of Energy Futures Research with responsibility for fundamentals encompassing the NYMEX energy complex. Previously, he was a NYMEX Research Department analyst covering natural gas, global crude oil and petroleum products and prior to NYMEX he had been a gas market analyst at Consolidated Edison of New York. He is a summa cum laude graduate from Pace University with a Bachelors of Business Administration and holds an MBA with distinction from New York University.

Harvey L. Harmon (Senior Director) has nearly 30 years of energy industry experience. Before joining PIRA, he worked at the U.S. DOE as Director of Natural Gas Import/Export Activities and Senior LNG Policy Advisor. He joined the Global LNG unit of El Paso in 2001 and was responsible for competitor and market analysis until 2003. He has been a consultant for Shell Gas & Power on LNG issues. Previously while at Tennessee Gas Pipeline and El Paso, he spearheaded numerous studies of demand, pipeline capacity and transportation issues with emphasis on competition at citygate markets. Earlier in his career at Fluor Daniel, he spent several years in Saudi Arabia designing offshore platforms. Mr. Harmon holds a M.S. in ocean engineering from Wisconsin and an M.B.A from the University of Texas.

Jane Hsu (Senior Analyst) was a Systems Analyst for Strand Management Solutions prior to PIRA. At PIRA she focuses on North American natural gas fundamentals and is responsible for maintaining and updating PIRA's detailed North American supply/demand balances as well as numerous analytical models that represent the backbone of PIRA's near-term and longer-term forecasts. Jane has a BS degree in computer science from Columbia University.

Nina Fahy (Senior Analyst) is responsible for PIRA's analysis of U.S. near-term fundamentals that impact the weekly and monthly gas storage forecasts. For PIRA's *Gas Trade Monthly*, she is responsible for analysis of all aspects of Canadian gas balances except domestic production. She is a Team Leader in developing new North American gas market analytics that utilize daily updates of production and demand driven by PIRA's pipeline flow models. Prior to joining PIRA, Nina conducted competitive benchmarking and market trends analysis of the investment management industry at Greenwich Associates. Nina holds a BA degree in political science and Russian and East European studies from Tufts University and a MS in political science from the Massachusetts Institute of Technology. She is a CFA Level II candidate.



Sheena Eaton (*Senior Analyst*) recently joined PIRA as a senior analyst in the North American Natural Gas Group. She brings five years of upstream oil and gas experience to the team, and will be contributing to all of the group's major reports. Prior to joining PIRA, she worked as both a reservoir engineer and reserves analyst at Nexen, one of Canada's largest, international exploration and production firms. She was directly involved with managing the company's reserves estimates and disclosures, and played a key role in responding to the SEC's Modernization of Oil and Gas Reporting in 2009. She has a B.E. in chemical engineering from the University of Saskatchewan in Saskatoon, Canada.

Sam Phillips (*Analyst*) works primarily on short-term supply/demand fundamentals including PIRA's weekly storage forecast, with a specific focus on the Mexican market and PIRA's GUMI model of industrial demand. Prior to joining PIRA, he worked as mechanical design engineer at École Centrale Paris. Sam graduated from Massachusetts Institute of Technology with a BS degree in mechanical engineering and a minor in physics.