Western Natural Gas Regions

Overview:

Market Description

The Western market is becoming a more prolific supplier and consumer of natural gas. Natural gas is the marginal fuel for dispatching power plants throughout most of the West. However, gas use is dependent on a complex set of factors: weather, storage inventory levels, pipeline capacity availability, hydroelectric resource availability, power-related imports, transmission line congestion, and other fossil-plant availabilities. The Western gas market is much more robust than it was 5-years ago because of massive, across the board investments in all phases of the natural gas supply chain (upstream wells, gathering and processing facilities, interstate pipeline expansions, market area storage, and distribution systems). Because of expanded drilling, Rockies natural gas production now equals about 8 Bcfd or 15 percent of total U.S. domestic dry gas production. Imports from Western Canada supply another 2 to 3 Bcfd of natural gas to the West. California accounts for the more than one-half of total regional gas use. Overall regional gas use is split somewhat comparably amongst the residential, industrial, and power sectors. Physical and financial gas-related products are traded actively at numerous market locations in the West. Storage capacity limitations in the Southwest can influence pipeline operating conditions, especially during peak periods.

Geography

States covered: Arizona, California, Colorado, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, Washington, and Wyoming.

Major Trading Hubs

Cheyenne Hub, Opal, PG&E Citygate, SoCal Border, El Paso San Juan, El Paso Permian, and Sumas.

Storage

State Capacity: California and Montana have 68 percent of total West capacity.

- Aquifer Capacity: 5%
- Depleted Field Capacity: 95%
- Total Capacity: 1,345 Bcf. Comprises 16 percent of total U.S. storage capacity.
- Major Storage Pipelines and Capacity:
  - California
    - SoCal Gas: 130 Bcf
    - PG&E: 42 Bcf
    - Lodi: 17 Bcf
    - Wild Goose: 24 Bcf
  - Wyoming
    - Clay Basin: 51 Bcf
  - Washington
    - Jackson Prairie: 22 Bcf
  - Colorado
    - Fort Morgan: 8.5 Bcf
    - Young: 5.8 Bcf
    - Latigo: 8.3 Bcf
    - Flank: 7.2 Bcf
    - Boehm: 5.2 Bcf

Demand by Sector (2005):

- Residential: 22%
- Commercial: 12%
- Industrial: 28%

State: California accounts for 52 percent of total Western market demand. Arizona, Colorado, Oregon and Washington comprise about 30 percent of total West demand.

Western Total: 4.3 Tcf annually (11.9 Bcfd), which comprises 19 percent of total U.S. demand.

Consumer Total: 18.0 million, which is approximately 20 percent of total consumers in the U.S.

Key Consuming States: California, Arizona, Colorado, and Washington make up 55 percent of the consumers in the West and about 16 percent of the total consumers in the U.S.

Residential Consumers: 94%

Production

State: Colorado, Wyoming, and Utah make up 86 percent of total West production. They comprise 23 percent of total U.S. production.

Total: Total West production comprises 27 percent of total U.S. production.

Prices at Southern California

2005		**2006**	
* Average Daily Price:	$7.56	* Average Daily Price:	$6.09
* Average Daily Basis:	-$1.24	* Average Daily Basis:	-$0.69
* Highest Daily Price:	$13.92	* Highest Daily Price:	$8.27
* Lowest Daily Price:	$5.24	* Lowest Daily Price:	$3.55

Pipeline Flows

Major Pipelines: Kern River Gas Transmission, El Paso Natural Gas, Transwestern Pipeline, TransCanada GTN, Northwest Pipeline, and Southern Trails Pipeline.

Average Daily Rockies Deliveries to the Midwest:

2005: 3.3 Bcfd
2006: 3.3 Bcfd

Major Pipelines: Trailblazer, Cheyenne Plains, El Paso and Colorado Interstate Gas carry a significant amount of gas from the Rockies to the Midwest. They carried:

2005: 73%
2006: 72%

Average Daily Rockies Deliveries to the West:

2005: 5.1 Bcfd
2006: 5.5 Bcfd

Major Pipelines: El Paso, Kern River and Northwest carry most of the gas from the Rockies further to the West. They flow:

2005: 88%
2006: 88%

Imports and Exports

Average Daily Imports from Canada into the West:

2005: 2.5 Bcfd
2006: 2.5 Bcfd

Major Importers: Northwest and GTN are the only two pipelines importing all of the gas from Canada into the Western U.S.

Focal Points

Southwest Generation: A combination of structural demand growth, hot weather, nuclear power plant outages at Palo Verde, and the mothballing of the Mohave generating station in Nevada contributed to significant increases in natural gas consumption by power generators in the Southwest. Based on analysis of pipeline data, estimated daily natural gas demand in Arizona rose by more than 500 MMcfd in 2006, or 62 percent, rising to 1,332 MMcfd from 820 MMcfd. Two-thirds of the growth in Arizona demand (342 MMcfd) came from the power sector.

Pipeline Capacity: The Cheyenne Plains Pipeline began commercial service in December 2005. Based on pipeline postings, average daily flow was 548 MMcfd in 2006, up 98 MMcfd from 2005. The lack of surplus take-away capacity on pipelines transporting western volumes into Mid-Continent was the main bottleneck retarding greater production volumes. The Rockies Express Pipeline is another system designed to address this bottleneck. The first phase and furthest upstream leg of the Rockies Express Pipeline – the Entrega Pipeline – began commercial service in 2006. According to available capacity postings from pipelines, initial flows averaged 175 MMcfd in 2006. The overall project is slated to be completed in 2010 and will ultimately link Colorado and Wyoming gas receipts with downstream markets in the Mid-Continent, Upper Midwest, and market area storage in Pennsylvania.

Yearly Average of DA Hub Prices

Annual Average Day Ahead Prices ($/MMBtu)

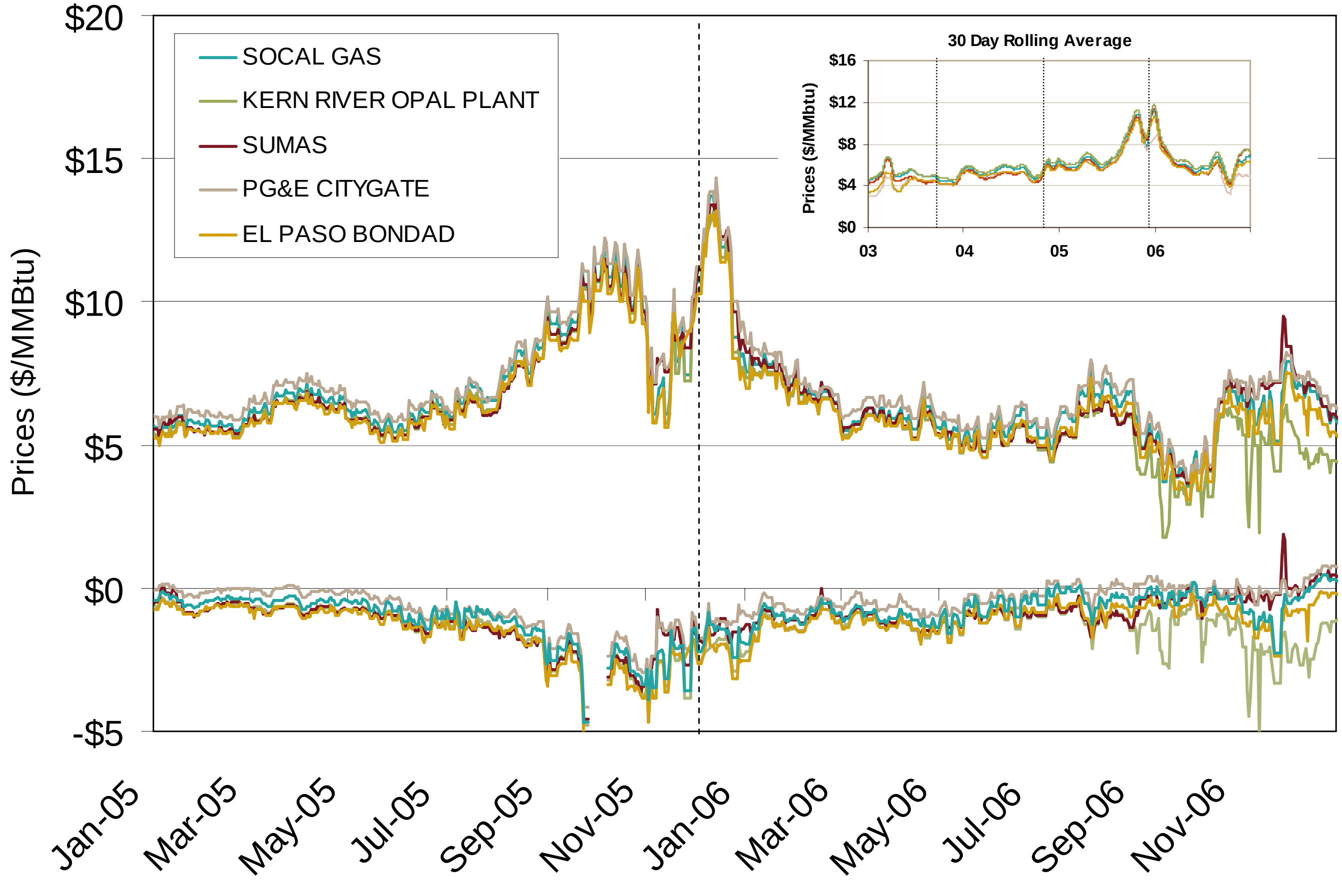
	2005	2006	5 Years
Socal border	$7.56	$6.10	$5.48
PG&E citygates	$7.94	$6.47	$5.70
Opal	$7.14	$5.39	$4.78
Sumas (Huntington)	$7.40	$6.01	$5.18
El Paso San Juan	$7.12	$5.74	$4.87

Source: Derived from *Platts* data.

Updated January 14, 2007

Western Natural Gas Market: Prices and Basis

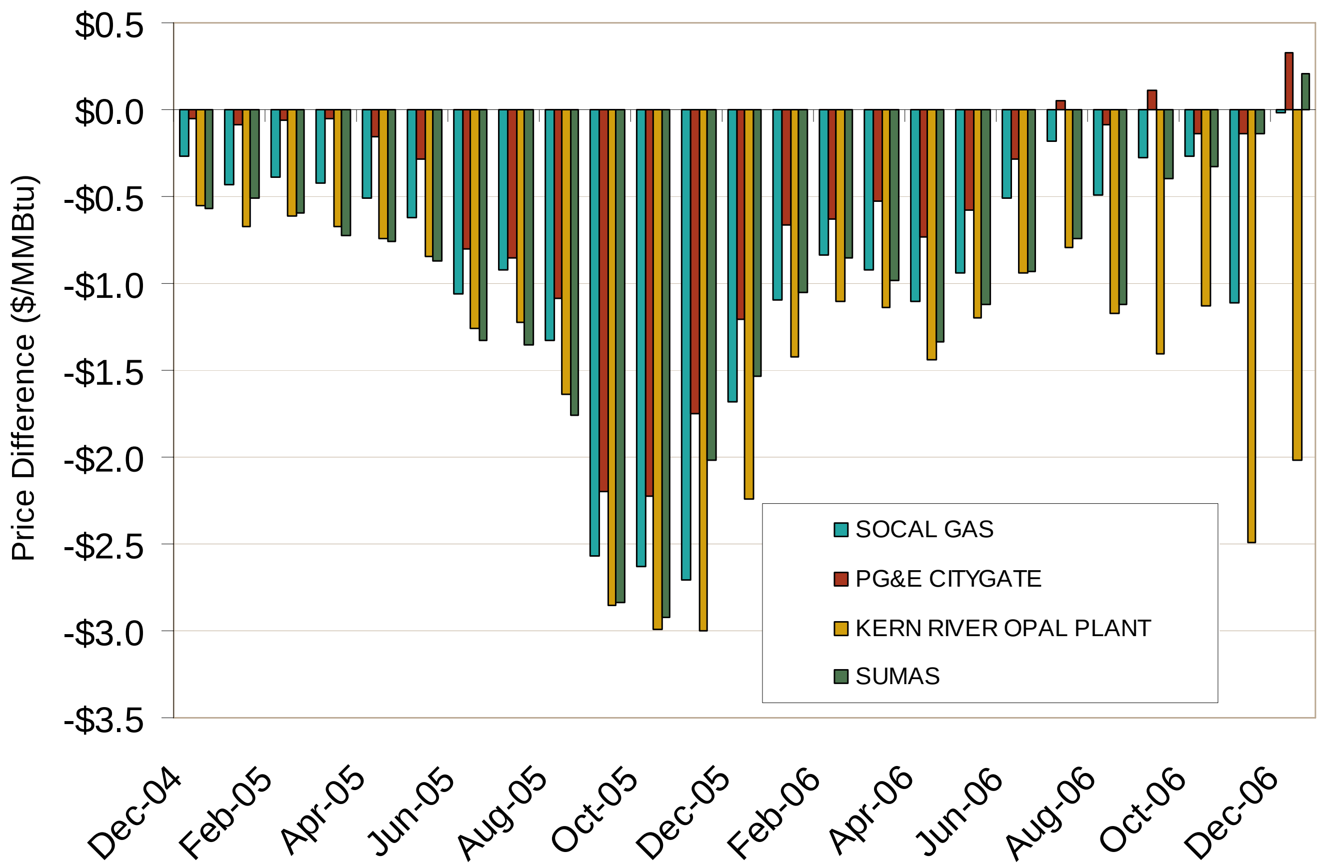
Western Day-Ahead Hub Spot Prices and Basis



Source: Derived from *Platts* data.

Updated January 16, 2007

Western Monthly Average Basis Value to Henry Hub

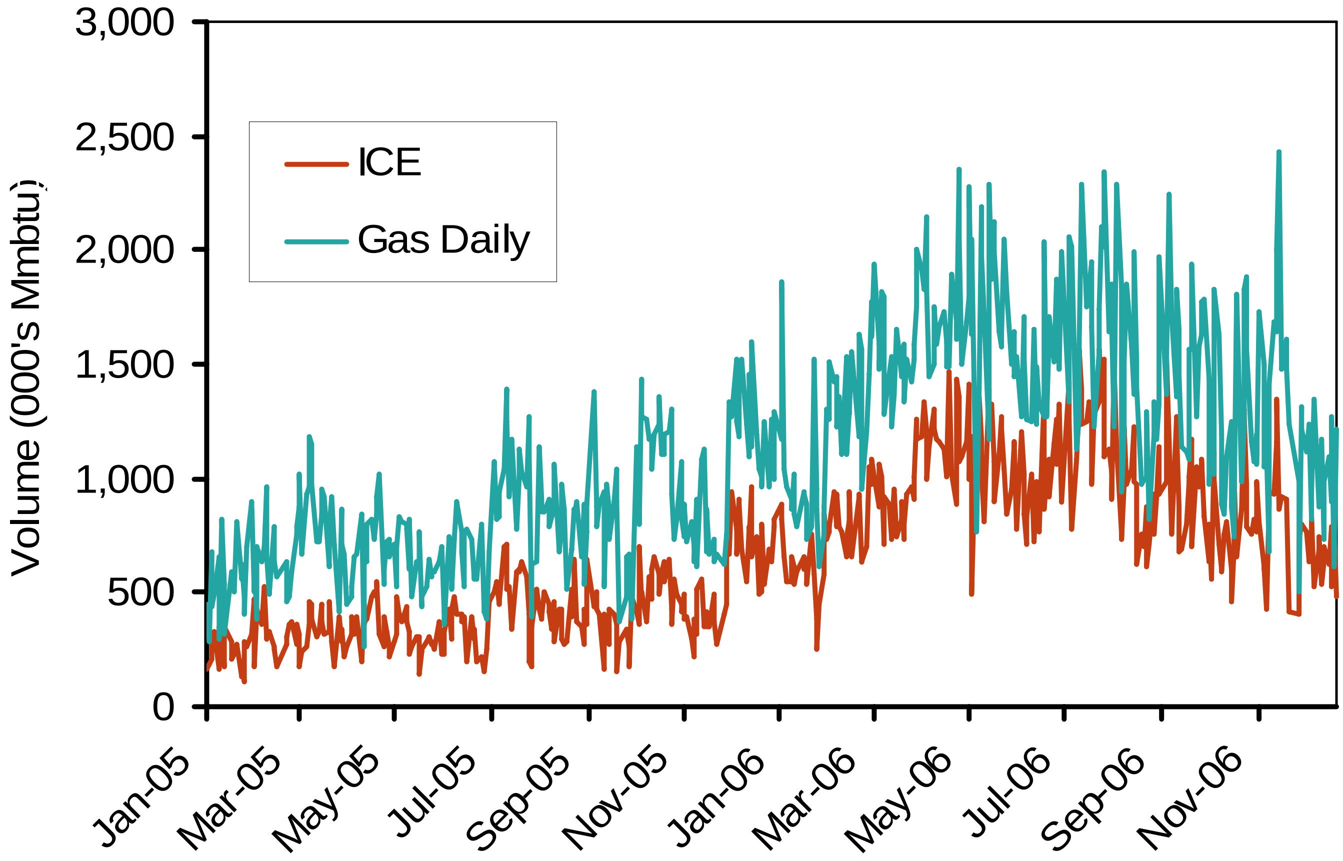


Source: Derived from *Platts* data.

Updated January 16, 2007

Western Natural Gas Market: Hub Volumes

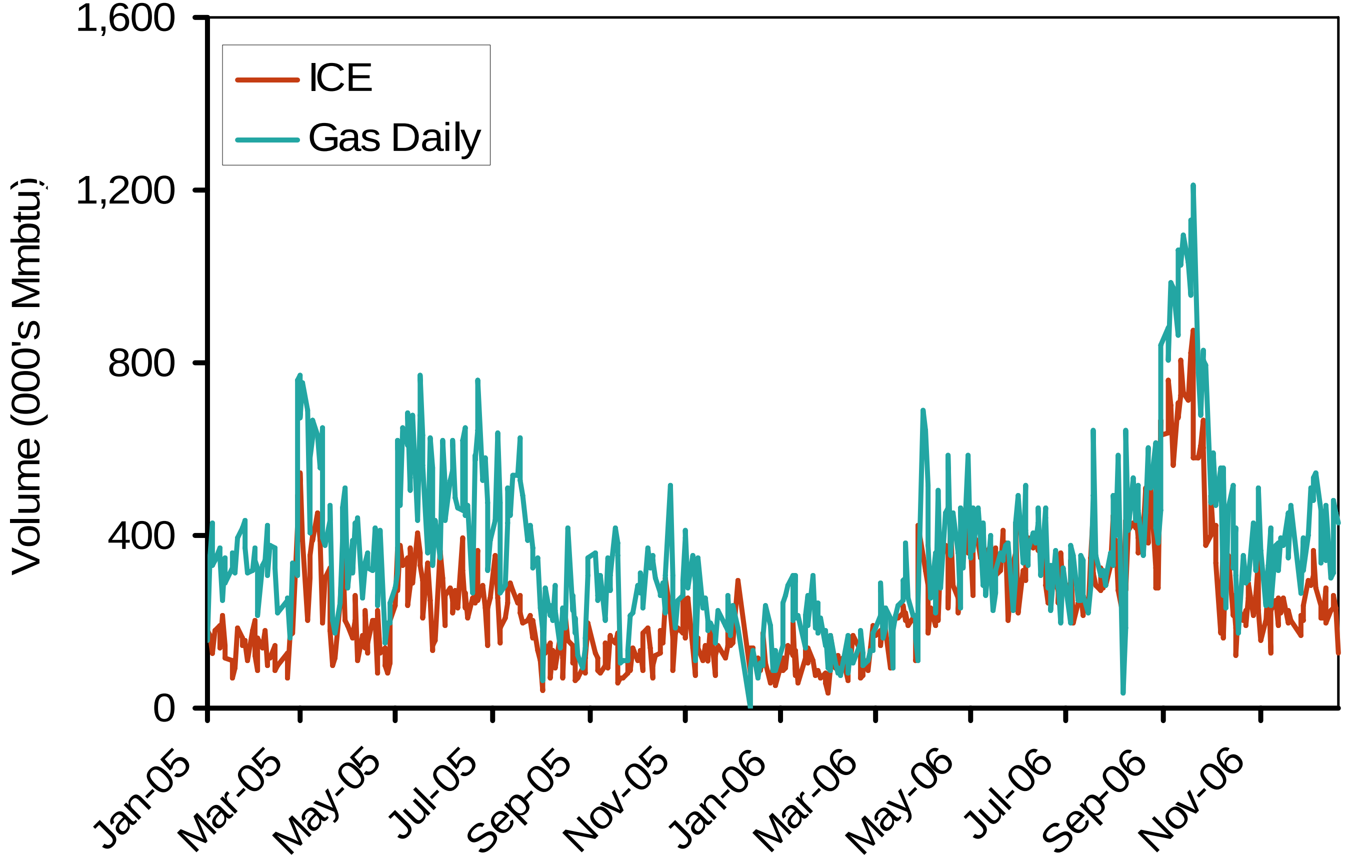
Reported Published and Traded Daily Spot Volumes: Socal Border



Source: Derived from *Platts*, *Gasdat* and *ICE* data.

Updated January 13, 2007

Reported Published and Traded Daily Spot Volumes: Kern River

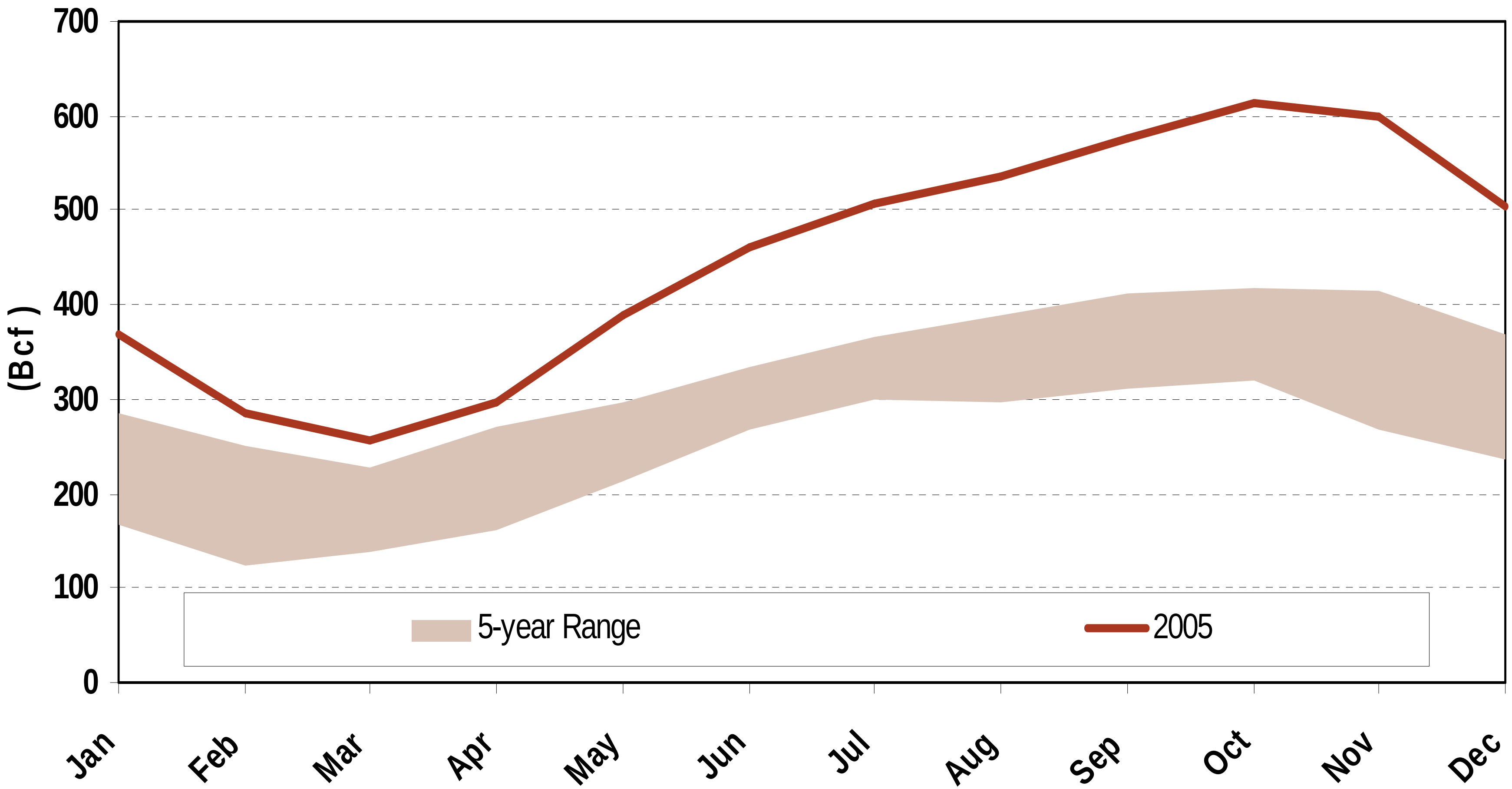


Source: Derived from *Platts*, *Gasdat* and *ICE* data.

Updated January 13, 2007

Western Gas Market: Storage

West Regional Storage Inventory Levels



Source: Derived from EIA data. Complete 2006 data not yet available.

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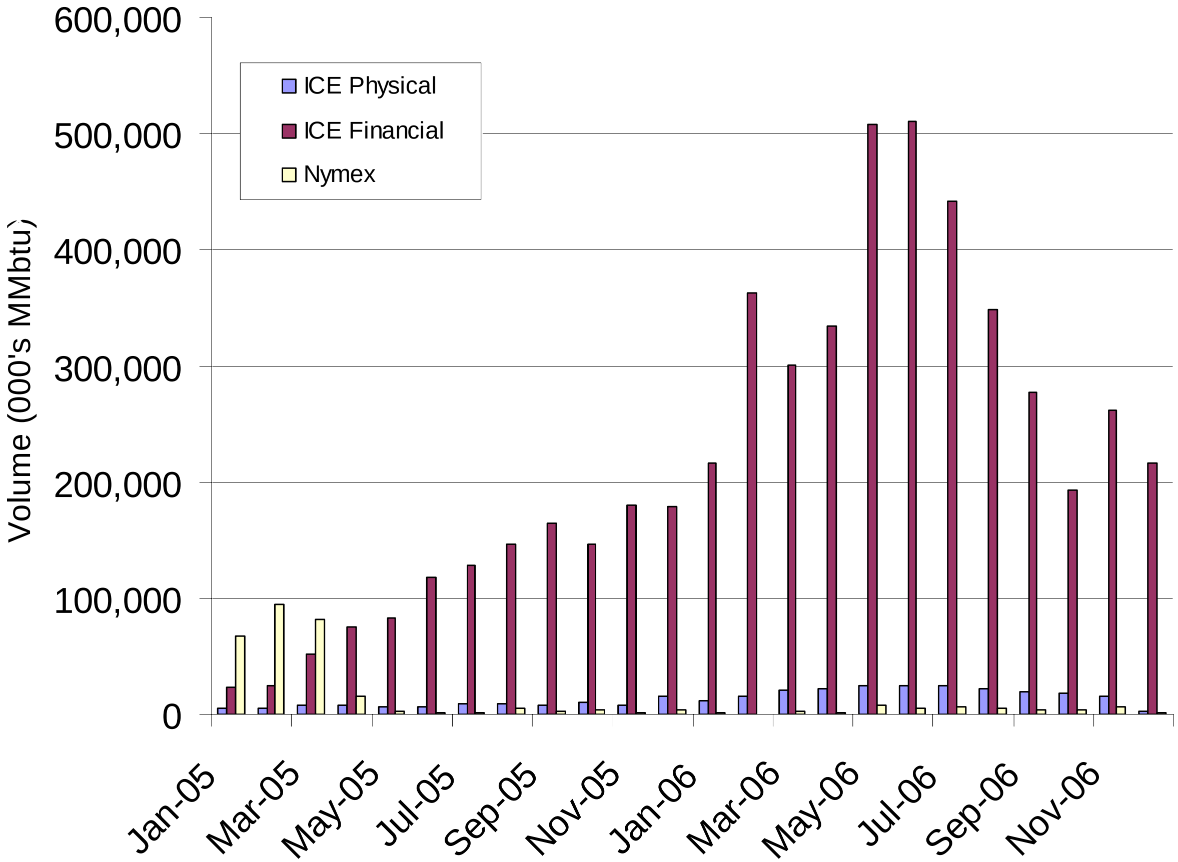
Western Natural Gas Market: Financial Market Volumes

SoCal Forward Swaps and Volumes



Source: Derived from ICE and Nymex data. Monthly estimates of market trading volumes for swaps and other forward market transactions include all transactions, regardless of term, traded for a given month and hub, and summarized and expressed in MMBtu.

Updated January 16, 2007

Pipeline Projects

Pipeline Projects

Company	Project Name	Capacity (MMcf/d)	Capital Cost (Millions)+	Status	Year Certificated	From-To State
Cheyenne Plains Gas Pipeline Co., LLC	Cheyenne Plains 2005 Expansion	170	$7.8	In-Service 11/05	2004	CO-CO
Questar Pipeline Company	Questar	10	$2.5	In-Service 01/05	2004	UT-UT
Transwestern Pipeline Company	San Juan Lateral Expansion	375	$138.4	In-Service 04/05	2004	NM-NM
Colorado Interstate Gas Company	Raton Basin 2005 Expansion	105	$60.6	In-Service 09/05 & 12/05	2005	CO-OK
El Paso Natural Gas Company	Line No. 1903	502	$73.6	In-Service 12/05 & 01/06	2005	CA-AZ
Entrega Gas Pipeline Inc.	EnCana Project	1,500	$664.0	Under Construction, Interm Service 02/06	2005	WY-CO
Northwest Pipeline Corporation	Capacity Replacement Project	0	$333.1	Under Construction	2005	WA-WA
Questar Pipeline Company	Southern System Expansion	102	$54.6	In-Service 09/05 & 11/05	2005	CO-UT
Rendezvous Gas Services, L.L.C.	Rendezvous	300	$11.3	Under Construction	2005	WY-WY
TransColorado Gas Transmission Corp.	North Expansion Project	300	$15.3	In-Service 01/06	2005	CO-CO
Wyoming Interstate Company, Ltd.	Piecance Basin Expansion	350	$120.2	Interm Service 03/06	2005	WY-CO
Northwest Pipeline Corporation	Parachute Lateral Project	450	$57.8	Under Construction	2006	CO-CO
Questar Pipeline Project	Overthrust to Opal Pipeline	550	$51.5	Under Construction	2006	WY-WY
Total		**4,714**	**$1,590.7**			

+ Capital cost figures are estimates.

Source: FERC Office of Energy Projects. Data as of Dec. 2005.

Updated January 8, 2007

Storage Projects

Storage Projects							
Company	**Project Name**	**Capacity (Bcf)**	**Deliverability (MMcf/d)**	**Capital Cost (Millions)+**	**Status**	**Year Certificated**	**State**
Unocal Windy Hill Gas Storage	Windy Hill	6	400	N/A	Approved	2006	CO
Total		**6**	**400**	**N/A**			

'+ Capital cost figures are estimates.

Source: FERC Office of Energy Projects. Data as of Dec. 2005.

Updated January 8, 2007

LNG Projects

LNG Projects						
Company	**Project Name**	**Capacity (Bcf)**	**Send-out (Bcf/d)**	**Status**	**Year Certificated**	**State**
Bayou Casotte Energy LLC	Casotte Landing LNG (Pascagoula, MS)	10.1	1.3	Filed 09/05	TBD	MS
Gulf LNG Energy, LLC	Port of Pascagoula LNG (Pascagoula, MS	6.8	1.5	Filed 10/05	TBD	MS
Southern LNG, Inc.	Elba Island Terminal	0	0.5	In Service 2/06	2006	GA
Total 2005		**16.9**	**2.8**			

Source: FERC Office of Energy Projects. Data as of Dec. 2005.

Updated January 8, 2007

Natural Gas Consumers by State (2005)

Sector	Residential	Commercial	Industrial	State Total	% of US	% of Region
Arizona	1,042,662	56,572	425	1,099,659	2%	6%
California	10,124,433	434,899	40,226	10,599,558	15%	59%
Colorado	1,524,813	137,513	4,318	1,666,644	2%	9%
Idaho	301,357	33,362	195	334,914	0%	2%
Montana	240,554	31,304	716	272,574	0%	2%
Nevada	688,058	37,093	192	725,343	1%	4%
New Mexico	530,277	47,745	988	579,010	1%	3%
Oregon	626,685	73,520	1,118	701,323	1%	4%
Utah	743,761	55,174	191	799,126	1%	4%
Washington	966,199	92,417	3,489	1,062,105	2%	6%
Wyoming	139,215	17,904	127	157,246	0%	1%
Regional Total	**16,928,014**	**1,017,503**	**51,985**	**17,997,502**	**26%**	**100%**
US Total	**63,573,466**	**5,196,428**	**205,217**	**68,975,111**		
% of US	**27%**	**20%**	**25%**	**26%**		
% of Region	**94%**	**6%**	**0%**	**100%**		

Source: Derived from Energy Information Administration data.

Updated January 11, 2007

Note: Units are in millions of cubic feet.

Natural Gas Demand by State (2005)

Sector	Residential	Commerical	Industrial	Vehicle Fuel	Electric Power	Other Fuel	State Total	% of US	% of Region
Arizona	35,767	31,888	16,975	1,462	217,485	17,581	321,158	1%	7%
California	483,115	232,789	781,381	4,167	689,169	51,515	2,242,136	10%	52%
Colorado	124,229	62,078	126,360	890	92,629	65,429	471,615	2%	11%
Idaho	21,603	13,231	22,852	104	11,425	5,339	74,554	0%	2%
Montana	19,834	13,136	22,013	80	213	13,155	68,431	0%	2%
Nevada	36,397	26,552	13,753	700	147,743	2,229	227,374	1%	5%
New Mexico	33,242	24,186	24,823	243	41,207	36,986	160,687	1%	4%
Oregon	39,806	27,631	69,645	104	87,998	7,285	232,469	1%	5%
Utah	58,044	34,447	25,370	717	12,239	29,989	160,806	1%	4%
Washington	73,626	49,745	66,874	429	65,809	8,174	264,657	1%	6%
Wyoming	11,543	9,184	43,304	15	576	43,561	108,183	0%	2%
Regional Total	**937,206**	**524,867**	**1,213,350**	**8,911**	**1,366,493**	**281,243**	**4,332,070**	**19%**	**100%**
US Total	**4,806,136**	**3,101,526**	**6,745,835**	**22,265**	**5,869,145**	**1,696,296**	**22,241,203**		
% of US	**20%**	**17%**	**18%**	**40%**	**23%**	**17%**	**19%**		
% of Region	**22%**	**12%**	**28%**	**0%**	**32%**	**6%**	**100%**		

Source: Derived from Energy Information Administration data.

Note: Units equal millions of cubic feet. Other Fuel consists of Lease Fuel, Plant Fuel, and Pipeline & Distribution use.

Updated January 12, 2007

Natural Gas Production by State

Dry Production	2004	2005	Yearly Change	2005 % of US	2005 % of Region
Arizona	331	233	-30%	0%	0%
California	305,858	303,889	-1%	2%	6%
Colorado	1,043,414	1,098,304	5%	6%	22%
Montana	96,128	106,769	11%	1%	2%
Nevada	5	5	0%	0%	0%
New Mexico	1,527,127	1,544,102	1%	9%	31%
Oregon	467	454	-3%	0%	0%
Utah	274,588	298,408	9%	2%	6%
Wyoming	1,521,372	1,571,754	3%	9%	32%
Regional Total	**4,769,290**	**4,923,918**	**3%**	**27%**	**100%**
US Total	**18,757,477**	**18,074,237**	**-4%**		
% of US	**8%**	**9%**			

Source: Derived from Energy Information Administration data.

Updated January 11, 2007

Note: Units are in millions of cubic feet.

Natural Gas Storage by Field Type (2005)

Field Type	Salt Dome Fields	Salt Dome Capacity	Aquifers	Aquifers Capacity	Depleted Fields	Depleted Fields Capacity	Total Fields	Total Capacity	% of US Capacity	% of Region	Dry Proved Reserves
California	0	0	0	0	11	477,726	11	477,726	6%	36%	3,228,000
Colorado	0	0	0	0	8	98,068	8	98,068	1%	7%	16,596,000
Montana	0	0	0	0	5	374,201	5	374,201	5%	28%	986,000
New Mexico	0	0	1	4,700	2	78,424	3	83,124	1%	6%	18,201,000
Oregon	0	0	0	0	6	24,034	6	24,034	0%	2%	0
Utah	0	0	2	11,980	1	117,500	3	129,480	2%	10%	4,295,000
Washington	0	0	1	42,191	0	0	1	42,191	1%	3%	0
Wyoming	0	0	1	10,000	7	104,160	8	114,160	1%	9%	23,774,000
Total	**0**	**0**	**5**	**68,871**	**40**	**1,274,113**	**45**	**1,342,984**	**16%**	**100%**	**67,080,000**
US Total	**30**	**250,532**	**44**	**1,350,689**	**320**	**6,667,222**	**394**	**8,268,443**			**204,385,000**
% of US	**0%**	**0%**	**11%**	**5%**	**13%**	**19%**	**11%**	**16%**			**33%**
% of Region	**0%**	**0%**	**11%**	**5%**	**89%**	**95%**	**100%**	**100%**			

Source: Derived from Energy Information Administration data.

Updated January 11, 2007

Note: Units are in millions of cubic feet.

Average Daily Rockies Deliveries to East

Pipeline	2004	2005	2006
Cheyenne Plains	0	417,251	560,136
CIG	534,894	545,437	578,046
El Paso	563,316	563,813	463,311
KMI	305,357	247,895	239,368
Southern Star	179,258	179,276	180,595
Trailblazer	848,343	839,261	842,434
Transwestern	158,617	322,755	368,483
Williston Basin	106,266	107,002	115,166
Net Deliveries	**2,696,050**	**3,222,690**	**3,347,538**

Source: Derived from Bentek data.

Updated January 11, 2007

Note: Units are in MMBtus.

Average Daily Rockies Deliveries to the West

Pipeline	2004	2005	2006
El Paso	2,019,980	2,008,620	2,149,112
Kern River	1,762,434	1,780,093	1,953,014
Northwest	482,979	523,858	599,133
Southern Trails	79,715	79,794	79,134
Transwestern	686,601	667,483	731,394
Net Deliveries	**5,031,708**	**5,059,847**	**5,511,786**

Source: Derived from Bentek data.

Note: Units are in MMBtus.

Updated January 11, 2007

Average Daily Western Imports of Canadian Gas

Pipeline	2004	2005	2006
GTN System	1,974,088	1,743,589	1,864,171
Northwest	811,995	780,358	603,088
Net Imports	**2,786,083**	**2,523,946**	**2,467,259**

Source: Derived from Bentek data.

Updated January 11, 2007

Note: Units are in MMBtus.