

## South Central Natural Gas Regions



## Overview:

### Market Description

The South Central is the key natural gas producing region in the United States. In 2005, it accounted for about 57 percent of total estimated dry natural gas production and nearly 50 percent of proved dry natural gas reserves. The region is home to almost 2 Tcf of storage capacity and innumerable interstate and intrastate pipeline interconnections and natural gas market centers and hubs such as the Henry, Katy, Moss Bluff and Waha Hubs. In 2005, regional gas consumption exceeded one-quarter of lower-48 natural gas production and represented one-third of lower-48 natural gas consumed by the electric power sector.

### Geography

**States covered:** Arkansas, Kansas, Louisiana, Oklahoma, and Texas.

### Major Trading Hubs

Henry Hub, Egan Hub, Waha Hub, Katy Hub, Houston Ship Channel, Moss Bluff Hub, Carthage Hub, NGPL TexOK, NGPL South Texas, and Southern Natural (Louisiana).

## Storage

**State Capacity:** Louisiana and Texas account for 65 percent of total South Central storage capacity. Over one-third of the storage facilities in the region are salt cavern facilities and represent almost 40 percent of regional storage deliverability. Storage facilities are well inter-connected to both intra-state and interstate pipelines. South Central storage enables customers in market areas (e.g., the Southeast, Mid-Atlantic and Northeast regions) to balance their daily needs and draw upon additional supplies on peak days.

Depleted Field Capacity: 92%

Salt Cavern: 8%

Total Capacity: South Central has 23 percent of total U.S. storage capacity.

Major Storage Pipelines and Capacity:

Louisiana

\* Henry Hub: 15 Bcf

\* Egan Hub: 14 Bcf

\* Perryville: 97 Bcf

Texas

\* Katy Storage: 21 Bcf

\* Moss Bluff: 12 Bcf

## Pipeline Flows

**Average Daily Supply:** The South Central region is a net exporter of natural gas mainly to downstream markets in the Midwest, Southeast, Mid-Atlantic and Northeast.

**Major Pipelines:** Texas Eastern Transmission, Tennessee Gas Pipeline, Southern Natural Gas, Transcontinental Gas Pipe Line, Gulf South Pipeline, CenterPoint Energy Gas Transmission, Natural Gas Pipeline Company of America, Trunkline Gas Company, Columbia Gulf Transmission Company, Texas Gas Transmission, and Florida Gas Transmission.

## Federal Energy Regulatory Commission • Market Oversight @ FERC.gov

**Demand by Sector (2005):**

- Residential: 6%
- Commercial: 5%
- Industrial: 44%
- Electric Utility: 34%

**State:** Louisiana and Texas account for 83 percent of total South Central demand. Those two states account for 22 percent of average annual U.S. demand.

**South Central Total:** 5.6 Tcf annually (16.4 Bcfd), which accounts for 26 percent of total U.S. daily demand.

**Residential Consumer Total:** 7.2 million which is approximately 11 percent of total residential consumers in the US.

**Key Consuming States:** Texas alone accounts for 55 percent of the total number of consumers in the South Central and about 6 percent of the total number of consumers in the U.S.

**Residential Consumers:** Account for 92 percent of total regional consumers but only 7 percent of overall demand, while the industrial sector accounts for 49 percent of overall demand.

**Production**

**State:** Texas, Oklahoma and Louisiana account for 93 percent of South Central production.

**Total:** South Central production accounts for 45 percent of total U.S. production.

**Prices**

<b>Henry Hub</b>	<b>2005</b>	<b>2006</b>
Average Price	\$8.11	\$6.76
Highest Daily Price	\$15.40	\$9.92
Lowest Daily Price	\$5.53	\$3.67

## Imports and Exports

International gas imports and exports still play a minor role in the South Central market when compared to regional domestic gas production. Pipeline imports from Mexico are negligible; exports to Mexico averaged about 800 MMMcfd in 2006. LNG is poised to reflect a growing share of regional supplies. The Lake Charles and Excelerate Energy Bridge LNG facilities complement domestic regional gas supplies. Although Lake Charles accounted for a growing share of U.S. LNG imports in 2006 average utilization at the terminal remains low and imports depend mainly on U.S. supply and demand market dynamics versus gas requirements, pricing, and logistics in competing markets.

### Imports at Lake Charles LNG Plant:

2004: 0.5 Bcfd

2005: 0.3 Bcfd

2006: 0.4 Bcfd

**Imports from Mexico into the U.S.:** Flows are negligible averaging 0.01 Bcfd thus far in 2006.

### Exports from US into Mexico:

2005: 0.7 Bcfd

2006: 0.8 Bcfd

**Major Exporter:** El Paso natural gas accounts for the majority of gas flows into Mexico. It flows:

2005: 0.5 Bcfd

2006: 0.6 Bcfd

## Focal Point

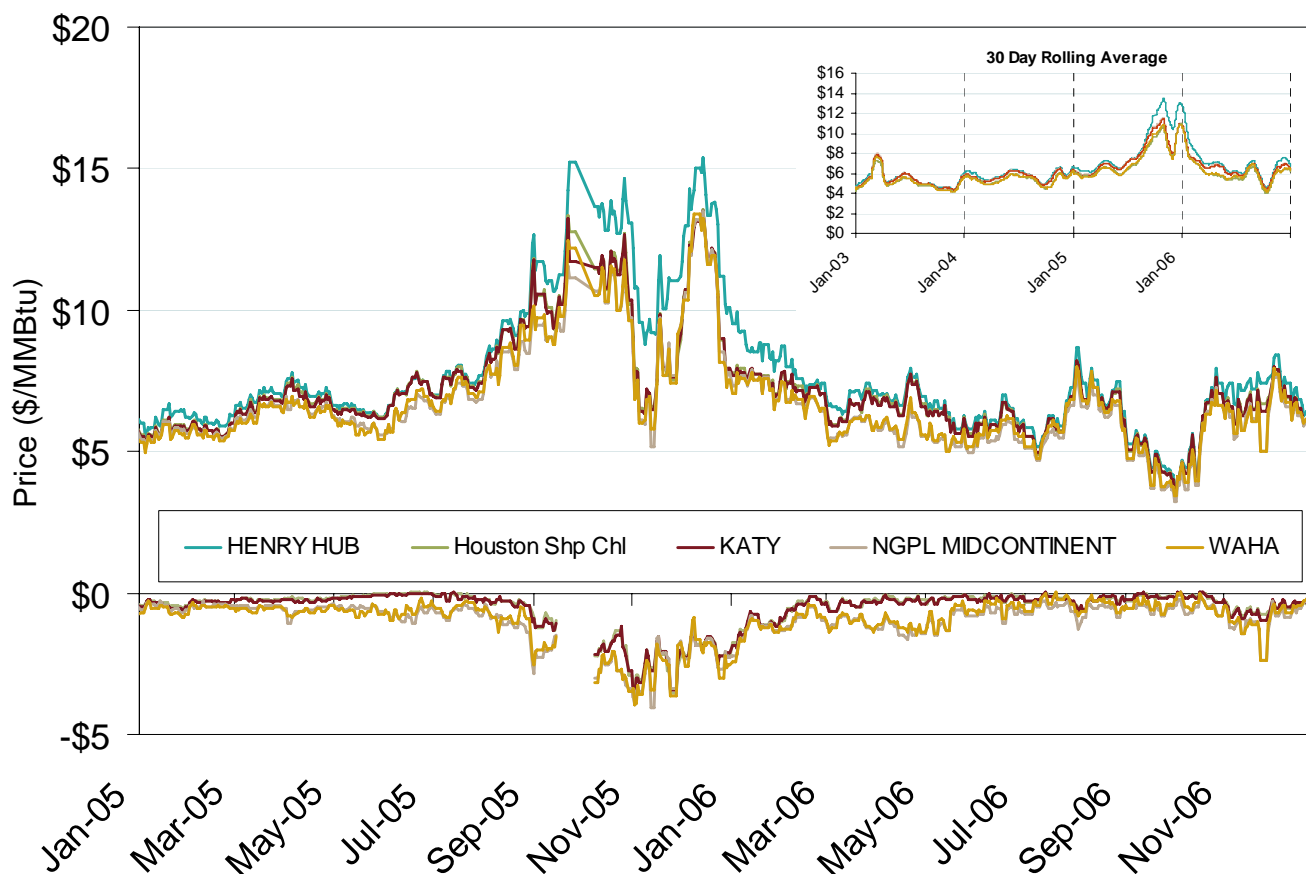
**Gulf Coast Production:** Production - both onshore and offshore - declined by 708 MMcfd, or 5 percent, in 2005 according to analysis of pipeline postings. Gulf production in 2006 declined 500 MMcfd (4.3 percent) to 12.1 Bcfd from 12.6 Bcfd.

**South Central Gas Market: Hub Prices****Yearly Average of DA Hub Prices****Annual Average Day Ahead Prices (\$/MMBtu)**

	<b>2005</b>	<b>2006</b>	<b>5 Years</b>
Henry Hub	\$8.63	\$6.74	\$6.00
NGPL Midcontinent	\$7.57	\$5.89	\$5.41
Houston Ship Channel	\$8.03	\$6.38	\$5.77
Katy	\$7.99	\$6.36	\$5.73
Waha	\$7.59	\$5.99	\$5.45

South Central Natural Gas Market: Prices and Basis

# South Central Day-Ahead Hub Spot Prices and Basis



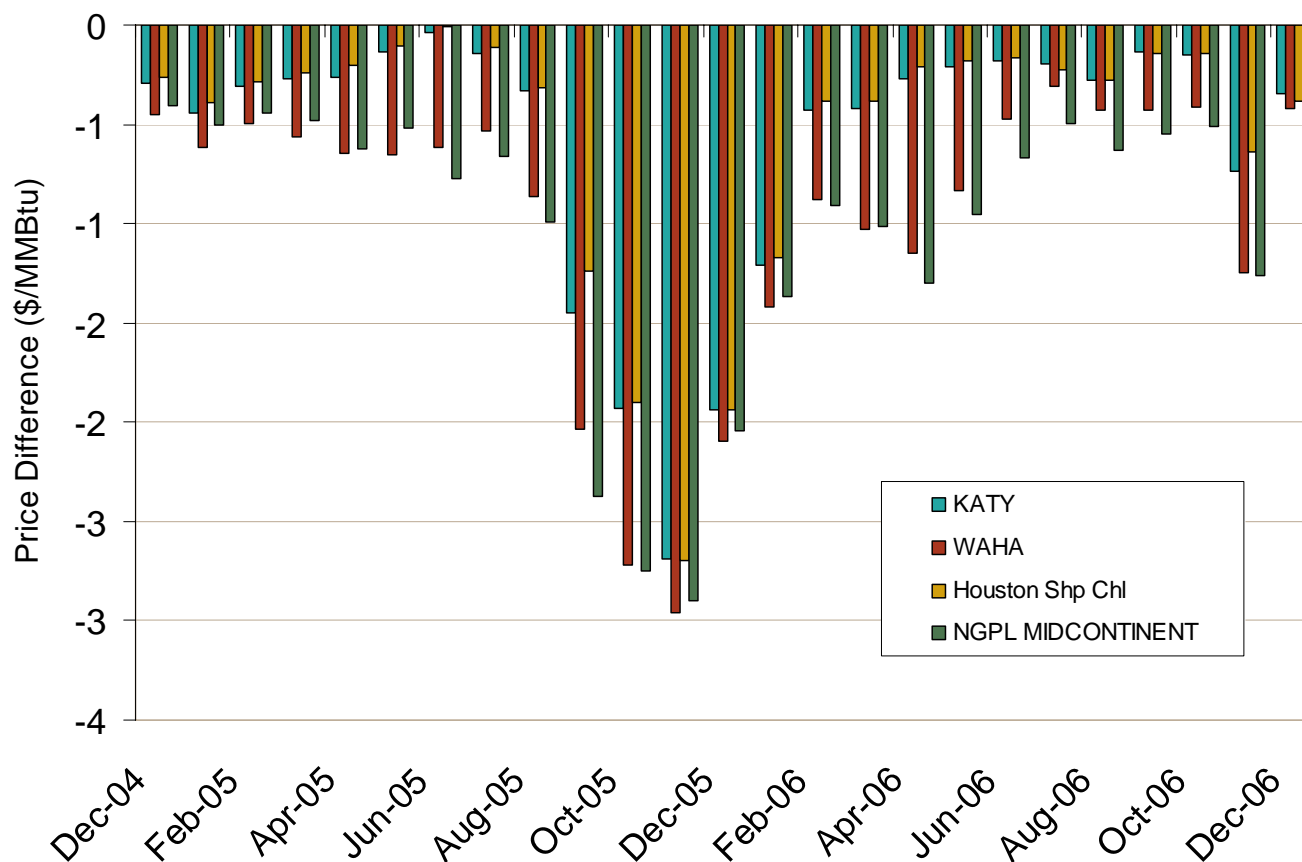
Source: Derived from *Platts* data.

Updated January 16, 2007



South Central Natural Gas Market: Prices and Basis

# South Central Monthly Average Basis Value to Henry Hub

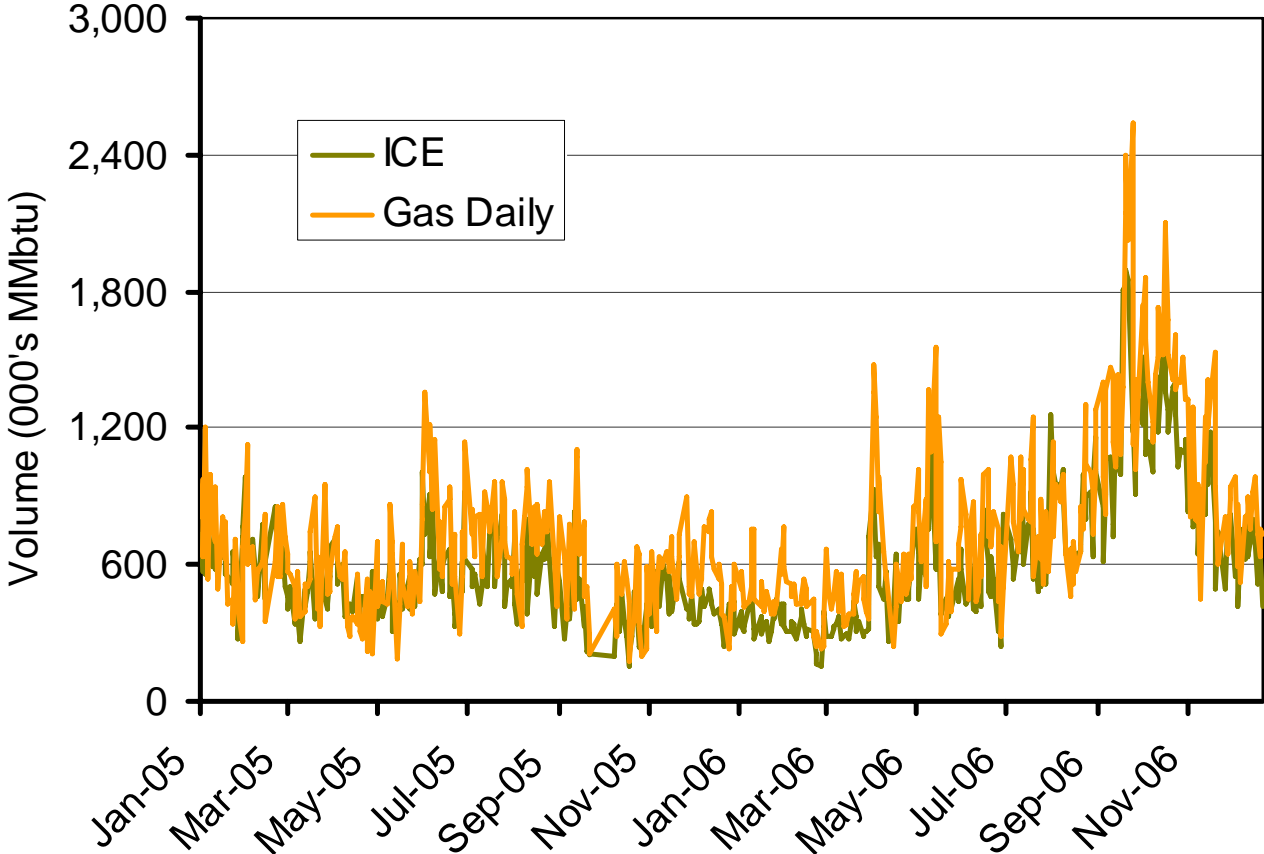


Source: Derived from Platts data.

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South Central Natural Gas Market: Hub Volumes

# Reported Published and Traded Daily Spot Volumes: Henry Hub

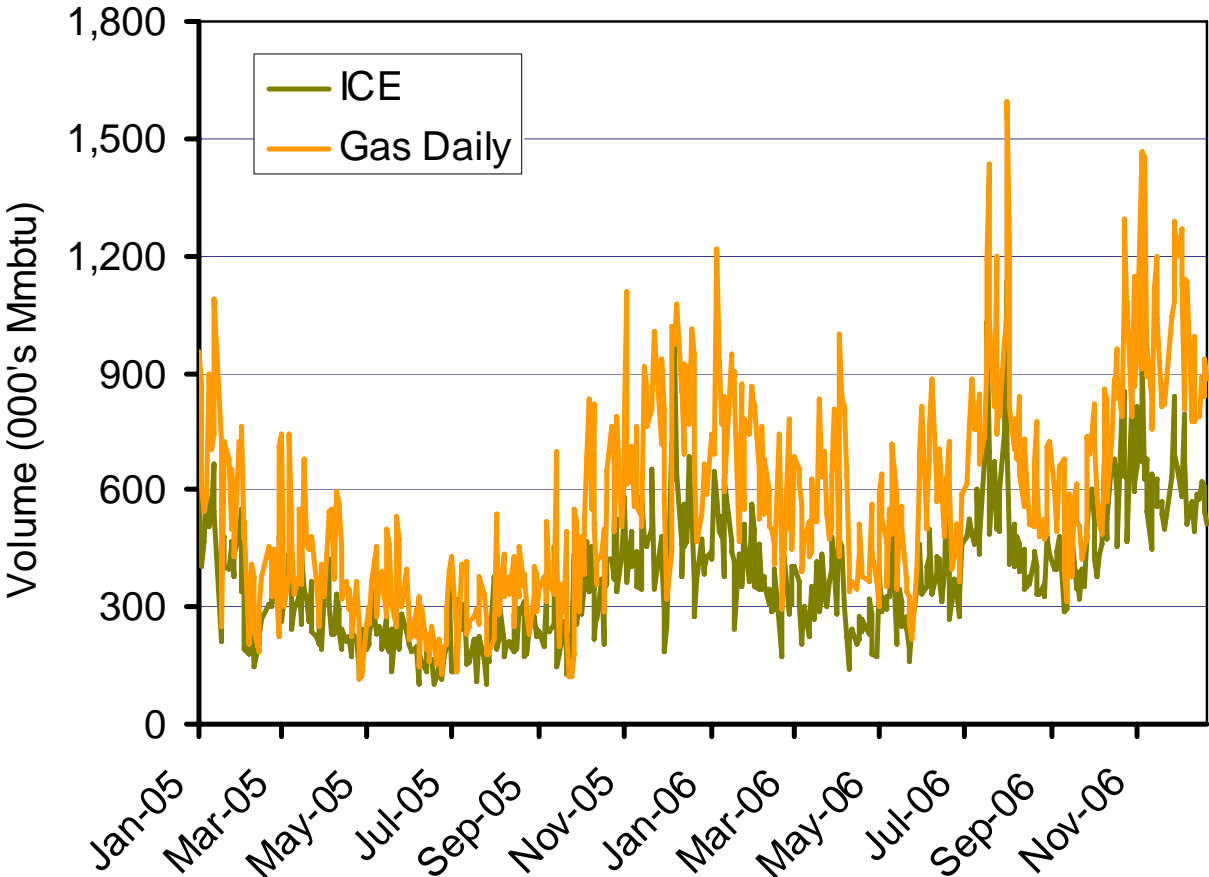


Source: Derived from *Platts* and *ICE* data.

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Southcentral Natural Gas Market: Reported Hub Volumes

# Reported Published and Traded Daily Spot Volumes: NGPL Texok

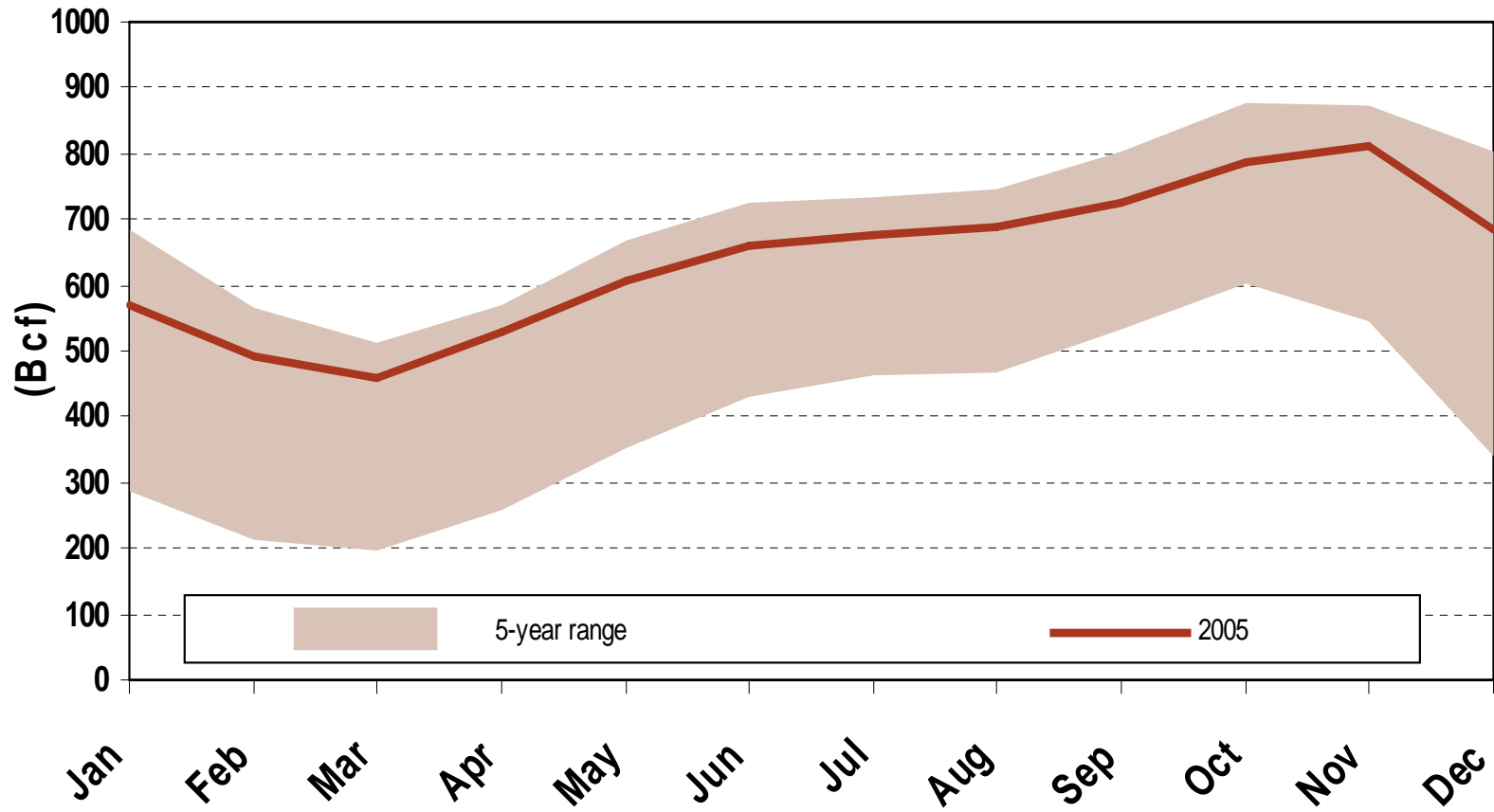


Source: Derived from Platts and ICE data.

Updated January 17, 2007

South Central Gas Market: Storage

# South Central Regional Storage Inventory Levels

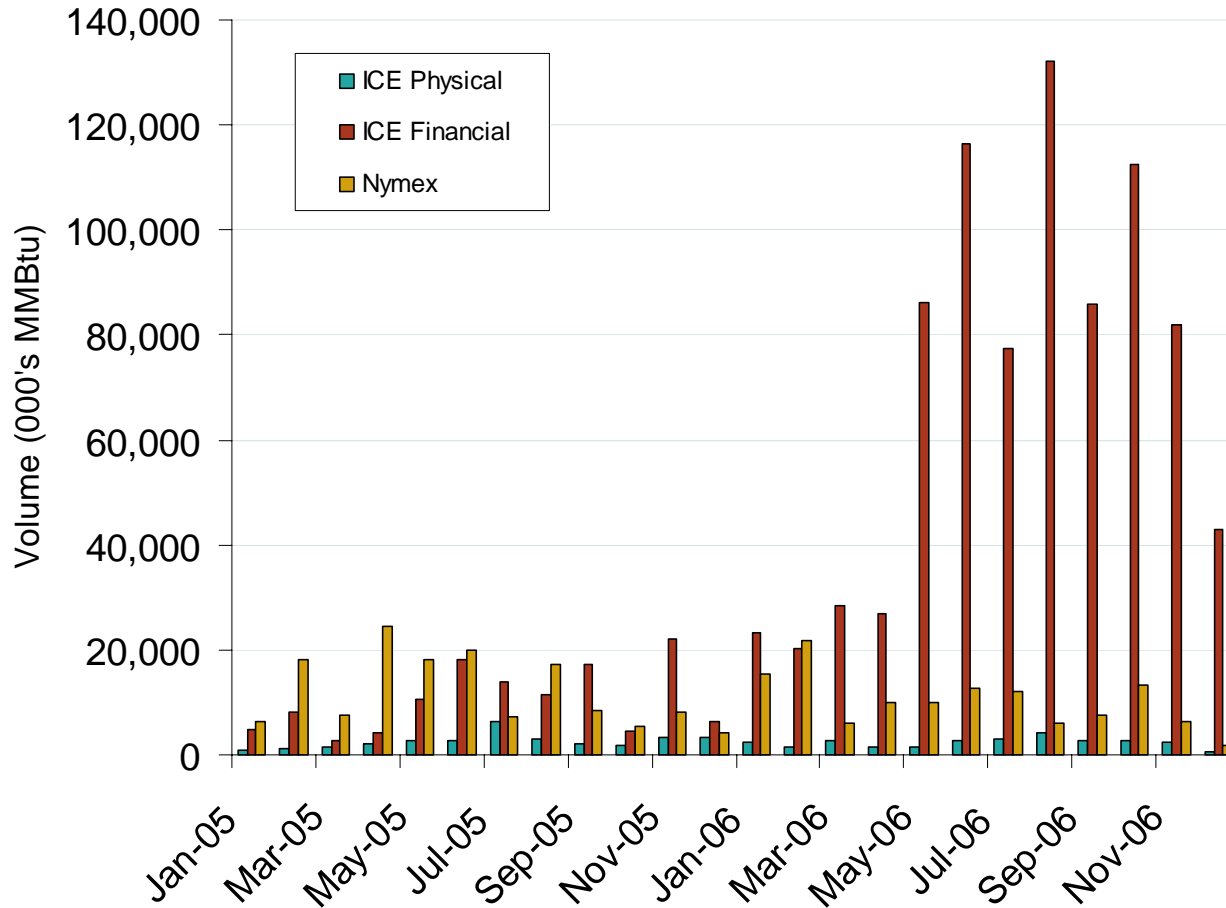


Source: Derived from EIA data. Complete 2006 data not yet available.

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South Central Natural Gas Market: Financial Market Volumes

# Houston Ship Channel 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.

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## South Central Gas Market: Infrastructure

## Pipeline Projects

Pipeline Projects						
Company	Project Name	Capacity (MMcf/d)	Capital Cost (Millions)+	Status	Year Certificated	From-To State
CenterPoint Energy Gas Transmission (	Round Mountain	70	\$9.8	In-Service 1/06	2004	AR-AR
Discover Gas Transmission LLC	Market Expansion Project	150	\$8.5	In-Service 06/05	2004	LA-LA
Trunkline Gas Company, LLC	Trunkline	200	\$1.8	In-Service 04/05	2004	TX-TX
CenterPoint Energy Gas Transmission (	Line AD Expansion	113	\$31.9	Completed but not in service.	2005	OK-OK
Dominion South Pipeline Co., LP	Dominion South	200	\$2.3	In-Service 12/05	2005	TX-TX
Tennessee Gas Pipeline Company	Triple-T Extension Project	200	\$22.0	Approved	2005	LA-LA
CenterPoint Energy Gas Transmission (	Carthage to Perryville Project	1,237	\$403.5	Under Construction	2006	LA-TX
<b>Total</b>		<b>2,100</b>	<b>\$470.0</b>			

+ Capital cost figures are estimates.

## South Central Gas Market: Infrastructure

## Storage Projects

Storage Projects							
Company	Project Name	Capacity (Bcf)	Deliverability (MMcf/d)	Capital Cost (Millions)+	Status	Year Certificated	State
Egan Hub Partners, LP	Cavern III	8	0	N/A	In-Service 8/06	2003	LA
CenterPoint Energy Gas Transmission	Chiles Dome Storage Expansion	15	309	\$25.6	In-Service 02/06	2005	OK
Liberty Gas Storage LLC	Liberty Gas Storage Project	17.6	1,000	N/A	Under Construction	2005	LA
Natural Gas Pipeline Co. of America	Sayre Storage Field Expansion	10	200	\$32.9	Under Construction	2005	OK
Egan Hub Partners, LP		0	1,000	N/A	Approved	2006	LA
Natural Gas Pipeline Co. of America	North Lansing Storage Expansion	10	140	\$49.5	Under Construction	2006	TX
Northern Natural Gas Company	Cunningham Field Project	0	70	\$6.2	Under Construction	2006	KS
Port Barre Investments, LLC	Bobcat Gas Storage	12	12,00	N/A	Approved	2006	LA
<b>Total</b>		<b>72.6</b>	<b>2,719</b>	<b>\$114.2</b>			

+ Capital cost figures are estimates.

## South Central Gas Market: Infrastructure

## LNG Projects

LNG Projects						
Company	Project Name	Capacity (Bcf)	Send-out (Bcf/d)	Status	Year Certified	State
Trunkline LNG	Lake Charles Terminal	2.7	0.6	In Service 07/06	2004	LA
Cheniere LNG	Corpus Christi LNG (Corpus Christi, TX)	10.1	2.6	Approved	2005	TX
ExxonMobil	Vista del Sol LNG Terminal (Corpus Christi, TX)	9.8	1.1	Approved	2005	TX
ExxonMobil	Golden Pass LNG Terminal (Sabine, TX)	16.4	2.0	Approved	2005	TX
Ingleside Energy-Occidental Energy Ventur	Ingleside Energy Center (Corpus Christi, TX)	6.8	1.0	Approved	2005	TX
Cheniere Creole Trail LNG, LP	Creole Trail (Cameron)	13.5	3.3	Approved 6/06	2006	LA
Freeport LNG Development, LP	Freeport, TX (Phase II)	3.4	2.5	Approved 9/06	2006	TX
Sabine Pass, LNH, LP	Sabine Pass (Phase II)	10.1	1.4	Approved 6/06	2006	LA
Sempra Energy	Port Arthur Terminal (Phase I)	20.3	3.0	Approved 6/06	2006	TX
Cheniere LNG	Creole Trail LNG (Cameron, LA)	13.5	3.3	Filed 05/05	TBD	LA
Cheniere LNG	Sabine Pass LNG Phase II (Sabine, LA)	10.1	1.4	Filed 07/05	TBD	LA
Cheniere/Freeport LNG Development	Freeport LNG Phase II (Freeport, TX)	3.4	2.5	Filed 05/05	TBD	TX
Gulf Coast Partners	Calhoun LNG (Port Lavaca, TX)	6.8	1.0	Filed 03/05	TBD	TX
Sempra - Port Arthur LNG	Port Arthur Terminal (Port Arthur, TX)	20.3	3.0	Filed 02/05	TBD	TX
<b>Total</b>		<b>147.18</b>	<b>28.7</b>			



## South Central Natural Gas Market: Demand

**Natural Gas Consumers by Sector (2005)**

Sector	Residential	Commercial	Industrial	State Total	% of US	% of Region
Arkansas	555,861	69,990	1,120	626,971	1%	8%
Kansas	856,369	85,638	8,286	950,293	1%	12%
Louisiana	896,992	57,954	1,084	956,030	1%	12%
Oklahoma	880,165	78,720	2,855	961,740	1%	12%
Texas	3,978,755	322,647	9,141	4,310,543	6%	55%
<b>Regional Total</b>	<b>7,168,142</b>	<b>614,949</b>	<b>22,486</b>	<b>7,805,577</b>	<b>11%</b>	<b>100%</b>
<b>US Total</b>	<b>63,573,466</b>	<b>5,196,428</b>	<b>205,217</b>	<b>68,975,111</b>		
<b>% of US</b>	<b>11%</b>	<b>12%</b>	<b>11%</b>	<b>11%</b>		
<b>% of Region</b>	<b>92%</b>	<b>8%</b>	<b>0%</b>	<b>100%</b>		

Source: Derived from Energy Information Administration data.

Updated January 11, 2007

Note: Units equal number of customers.

## South Central Natural Gas Market: Demand

**Natural Gas Demand by Sector (2005)**

Sector	Residential	Commerical	Industrial	Vehicle Fuel	Electric Power	Other Fuel	State Total	% of US	% of Region
Arkansas	33,605	31,521	88,822	188	48,987	10,664	213,787	1%	4%
Kansas	64,898	29,644	97,849	11	14,105	48,586	255,093	1%	4%
Louisiana	40,755	24,978	801,411	144	285,022	133,192	1,285,502	6%	22%
Oklahoma	59,353	39,359	146,593	1,170	242,178	94,813	583,466	3%	10%
Texas	184,895	159,895	1,466,824	2,697	1,466,263	348,967	3,629,541	16%	61%
<b>Gulf Total</b>	<b>383,506</b>	<b>285,397</b>	<b>2,601,499</b>	<b>4,210</b>	<b>2,056,555</b>	<b>636,222</b>	<b>5,967,389</b>	<b>27%</b>	<b>100%</b>
<b>US Total</b>	<b>4,806,136</b>	<b>3,101,526</b>	<b>6,745,835</b>	<b>22,265</b>	<b>5,869,145</b>	<b>1,696,296</b>	<b>22,241,203</b>		
<b>% of US</b>	<b>8%</b>	<b>9%</b>	<b>39%</b>	<b>19%</b>	<b>35%</b>	<b>38%</b>	<b>27%</b>		
<b>% of Region</b>	<b>6%</b>	<b>5%</b>	<b>44%</b>	<b>0%</b>	<b>34%</b>	<b>11%</b>	<b>100%</b>		

Source: Derived from Energy Information Administration data.

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

## South Central Natural Gas Market: Production

**Natural Gas Production by State**

<b>Dry Production</b>	<b>2004</b>	<b>2005</b>	<b>Yearly Change</b>	<b>2005 % of US</b>	<b>2005 % of Region</b>
<b>Arkansas</b>	186,815	190,302	2%	1%	2%
<b>Kansas</b>	362,548	345,708	-5%	2%	4%
<b>Louisiana</b>	1,223,932	1,192,667	-3%	7%	15%
<b>Oklahoma</b>	1,578,793	1,582,733	0%	9%	19%
<b>Texas</b>	4,707,205	4,899,385	4%	27%	60%
<b>Region Total</b>	<b>8,059,293</b>	<b>8,210,795</b>	<b>2%</b>	<b>45%</b>	<b>100%</b>
<b>US Total</b>	<b>18,757,477</b>	<b>18,074,237</b>	<b>-4%</b>	<b>91%</b>	
<b>% of US</b>	<b>43%</b>	<b>45%</b>			

Source: Derived from Energy Information Administration data.

Updated January 11, 2007

Note: Units equal millions of cubic feet.

## South Central Natural Gas Market: Storage

## 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
Arkansas	0	0	0	0	2	22,000	2	22,000	0%	1%	1,964,000
Kansas	1	1,093	0	0	18	288,655	19	289,747	4%	15%	4,314,000
Louisiana	6	63,314	0	0	8	530,426	14	593,740	7%	30%	10,447,000
Oklahoma	0	0	0	0	13	378,738	13	378,738	5%	19%	17,123,000
Texas	14	120,459	0	0	20	559,637	34	680,096	8%	35%	56,507,000
<b>S. Central Total</b>	<b>21</b>	<b>184,866</b>	<b>0</b>	<b>0</b>	<b>61</b>	<b>1,779,456</b>	<b>82</b>	<b>1,964,321</b>	<b>24%</b>	<b>100%</b>	<b>90,355,000</b>
<b>US Total</b>	<b>30</b>	<b>250,532</b>	<b>44</b>	<b>1,350,689</b>	<b>320</b>	<b>6,667,222</b>	<b>394</b>	<b>8,268,443</b>			<b>204,385,000</b>
<b>% of US</b>	<b>70%</b>	<b>74%</b>	<b>0%</b>	<b>0%</b>	<b>19%</b>	<b>27%</b>	<b>21%</b>	<b>24%</b>			<b>44%</b>
<b>% of Region</b>	<b>26%</b>	<b>9%</b>	<b>0%</b>	<b>0%</b>	<b>74%</b>	<b>91%</b>	<b>100%</b>	<b>100%</b>			

Source: Derived from EIA Natural Gas Annual 2005.

Note: Storage data is as of 2005. Dry Proved Reserves data is as of 2004.

Source: Derived from Energy Information Administration data.

Updated January 11, 2007

Note: Units equal millions of cubic feet.