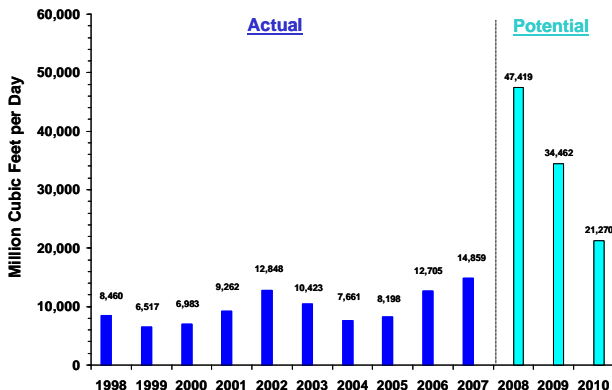


Additions to Capacity on the U.S. Natural Gas Pipeline Network: 2007

This report examines new natural gas pipeline capacity added to the U.S. natural gas pipeline system during 2007 and the areas of the country where those additions were concentrated. In addition, it discusses and analyzes proposed natural gas pipeline projects that may be developed between 2008 and 2010 and the market factors supporting these initiatives. Questions or comments on this article should be directed to Damien Gaul at damien.gaul@eia.doe.gov or (202) 586-2073, or James Tobin at james.tobin@eia.doe.gov or (202) 586-4835.

U.S. natural gas pipeline construction activity accelerated in 2007 with capacity additions to the grid totaling nearly 14.9 billion cubic feet (Bcf) of daily deliverability (Figure 1). These additions were the largest of any year in the Energy Information Administration's (EIA) 10-year database of pipeline construction activity. The increased level of natural gas pipeline construction activity in 2007 conformed to a growth trend that began slowly in 2005 and intensified in 2006. In 2007, about 1,700 miles of pipeline were installed, which was greater than in any year since 2003 (Figure 2).

Figure 1. Natural Gas Pipeline Capacity Additions, 1998-2010



Note: Only projects under construction or approved that were judged to have the most likelihood of being completed in 2008 were included in 2008.
 Source: Energy Information Administration, GasTran Natural Gas Transportation Information System, Natural Gas Pipeline Projects Database, as of May 2008.

The expansion cycle for natural gas pipeline construction is occurring at the same time as the development of the natural gas resource base in North and East Texas, particularly the Barnett Shale and Bossier Sands, and increased drilling in the Rocky Mountains. Forty percent of the 50 pipeline projects completed in 2007 were associated with new production in Texas and the Rocky Mountain States of Utah, Colorado and Wyoming (included in the Central Region for this report). Projects completed in the Rocky Mountain area accounted for 26 percent of all new natural gas pipeline capacity (3.9 Bcf per day) installed during the year, while those completed in Texas accounted for another 27 percent (4.0 Bcf per day).

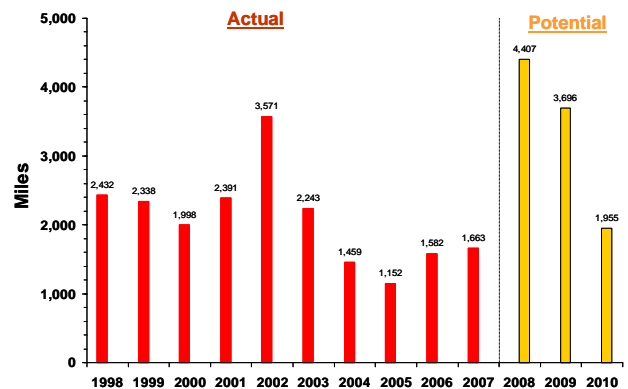
Numerous pipeline expansions also are occurring in response to construction of import terminals for liquefied natural gas (LNG), which is received for U.S. markets from overseas suppliers on specially built tankers. These supplies, which arrive at various marine terminals in liquid form, are returned to a gaseous form and transported by pipeline to distribution companies for subsequent retail

sales, industrial consumers, and electric power sector. In response to higher prices and higher costs for domestic supplies, LNG imports are expected to grow significantly in the next several years. In fact, new construction and expansion of LNG terminals or LNG-related pipeline infrastructure is currently underway in several regions of the United States, as well as in Mexico and Canada.¹

The cost of pipeline construction activity in 2007 is estimated at \$4.3 billion for the 50 completed projects (Table 1, with map included as Figure 3). These expenditures represent an increase of 87 percent over costs for completions in 2006, when costs totaled \$2.3 billion for the addition of 1,582 miles of new pipeline and 12.7 Bcf per day of new capacity to the grid. This article discusses the results of this investment in various pipeline projects completed during 2007, as well as the general trends underlying the infrastructure developments.

Highlights

Figure 2. Additions to Pipeline Mileage, 1998-2010



Note: Only projects under construction or approved that were judged to have the most likelihood of being completed in 2008 were included in 2008. Remaining unlikely 2008 scheduled projects included under 2009.
 Source: Energy Information Administration, GasTran Natural Gas Transportation Information System, Natural Gas Pipeline Projects Database, as of May 2008.

Even as the pace of additions to the U.S. natural gas pipeline grid slowed significantly earlier this decade, several trends were developing in the U.S. natural gas marketplace that would eventually lead to the current investment escalation. These underlying trends included the mature degree of exploitation of conventional natural gas resources in areas such as in the Gulf of Mexico region, as well as increased demand for natural gas in the electric power sector. These

¹ Energy Information Administration, *LNG Imports – The Next Wave* (Washington, D.C. January 2007). Available on the Internet at: http://www.eia.doe.gov/emeu/steo/pub/pdf/LNG_Jan2007.pdf

Table 1. Natural Gas Pipeline Construction Projects Completed in 2007, by Terminating Region

Ending Region & State	Begins in State -- Region	Map Key	Pipeline - Project Name	FERC Docket Number (Interstate Projects)	Type of Project	In Service Date	Estimated Cost (Million Dollars)	Miles	Additional Capacity (MMcf/d) ¹
Central									
WY	WY	Central	1 Questar Overthrust - Wamsutter Expansion	CP06-423	Compression ² /Lateral ³	01-Dec-07	202	77	750
WY	WY	Central	2 Jonah - Phase V Expansion	Not applicable	Compression	01-Nov-07	300	0	650
UT	UT	Central	3 Questar - Southern System Expansion	CP07-25	Looping ⁴ /Compression	01-Nov-07	108	59	175
WY	UT	Central	4 Wyoming Interstate - Kanda Lateral	CP07-14	Lateral	01-Dec-07	121	123	406
WY	WY	Central	5 Rockies Express - Processing Plant Lateral	CP07-383	Lateral	15-Nov-07	15	3	150
CO	NM	Central	6 TransColorado - Blanco-to-Meeker Expansion	CP06-401	Compression	31-Dec-07	58	0	250
CO	CO	Central	7 Northwest - Parachute Expansion	CP06-45	Lateral	15-May-07	58	38	450
CO	WY	Central	8 Rockies Express - West (Entrega)	CP04-413	New Pipeline ⁵	15-Feb-07	560	192	750
WY	WY	Central	9 Fort Union Gathering - 2007 Expansion	Not applicable	Looping/Compression	31-Oct-07	41	43	240
ND	MT	Central	10 Williston Basin - Grasslands Expansion	CP07-131	Compression	01-Dec-07	6	0	41
MN	IA	Central	11 Northern Natural - Northern Lights Project	CP06-403	Looping/Extension ⁶	31-Oct-07	129	79	374
IA	KS	Central	12 Northern Natural - Palmyra North Expansion	CP06-433	Compression	31-Oct-07	9	6	44
Subtotal							1,607	619	4,280
Midwest									
IL	IL	Midwest	13 Kinder Morgan - Chicago Pipeline	CP06-455	New Pipeline	20-Dec-07	13	3	360
OH	OH	Midwest	14 Columbia Gas Ohio - Delaware County Extension	Not applicable	Extension	01-Dec-07	14	10	100
Subtotal							27	13	460
Canada									
ON	IL	Midwest	15 Vector - 2007 Phase 1 Expansion	CP06-29	Compression	13-Nov-07	70	0	245
Subtotal							70	0	245
Northeast									
MA	MA	Northeast	16 Algonquin - Northeast Gateway LNG	CP05-383	Lateral	15-Dec-07	180	16	800
MA	MA	Northeast	17 Algonquin - Cape Cod Lateral	CP06-143	Lateral	01-Dec-07	15	4	38
MA	NY	Northeast	18 Tenneco - Northeast ConneXion	CP05-412	Compression	01-Nov-07	111	0	136
NY	PA	Northeast	19 Transco - Leidy-to-Long Island Expansion	CP06-34	Looping/Compression	13-Dec-07	162	15	100
NJ	PA	Northeast	20 Texas Eastern -TIME II Expansion Phase 1	CP06-115	Looping/Compression	30-Nov-07	117	22	150
DE	PA	Northeast	21 Eastern Shore - 2007 Expansion	CP06-53	Looping/Compression	15-Dec-07	8	11	10
MD	NC	Southeast	22 Transco - Potomac Expansion	CP06-421	Looping/Compression	09-Nov-07	88	19	165
VA	VA	Northeast	23 Columbia Gas - Storage Link Expansion	CP05-144/PF04	Looping	01-Apr-07	55	34	175
WV	WV	Northeast	24 Columbia Gas - Hardy Storage Lateral	CP05-150	Lateral	01-Mar-07	49	13	175
Subtotal							784	134	1,749
Southeast									
FL	GA	Southeast	25 Southern Natural - Cypress 2007 Phase 1	CP05-388	New Pipeline	01-May-07	240	167	335
FL	FL	Southeast	26 Florida Gas Transmission - Phase VII Expansion	CP06-01	Looping/Compression	22-Dec-07	64	17	95
Subtotal							304	184	430
Southwest									
LA	TX	Southwest	27 Centerpoint - Perryville Expansion	CP06-85	New Pipeline	01-Apr-07	425	172	1,237
LA	LA	Southwest	28 Regency Intrastate - North LA Expansion	Not applicable	Compression	06-Jun-07	17	0	200
LA	LA	Southwest	29 Centerpoint - Elm Grove Expansion	CP06-168	Looping/Compression	15-Feb-07	18	18	140
LA	LA	Southwest	30 Regency Intrastate - Bossier Loop Phase 2	Not applicable	Compression	01-Apr-07	5	0	100
LA	LA	Southwest	31 CrossTex - LIG Extension	Not applicable	Extension	01-Apr-07	90	74	200
TX	TX	Southwest	32 Centerpoint - Harrison Lateral Expansion	EM06-05	Looping	15-Mar-07	13	14	60
GM	GM	Offshore	33 Tenneco - Triple-T Extension	CP05-416	Lateral	14-Sep-07	22	6	200
GM	GM	Offshore	34 Tenneco - Deepwater Link Project	CP05-100	Extension	01-Jul-07	40	1	1,000
GM	GM	Offshore	35 Cleopatra - Gathering System Expansion	Not applicable	Lateral	31-Jul-07	36	21	375
LA	LA	Southwest	36 Pine Praire - Miller's Lake Lateral	CP04-379	Looped Lateral	04-Dec-07	28	14	600
LA	TX	Southwest	37 Trunkline - North Texas 2007 Expansion	CP06-452	Looping	20-Nov-07	179	45	625
LA	TX	Southwest	38 Sabine - Henry Hub Expansion	EM06-05	Compression	30-Sep-07	16	0	50
TX	TX	Southwest	39 NGPL - North Lansing Loop	CP05-405	Looping	15-Aug-07	10	9	140
TX	TX	Southwest	40 Energy Transfer - Barnett-Texoma Expansion	Not applicable	Extension	01-Apr-07	360	135	700
TX	TX	Southwest	41 Eagle Energy - Extension Line	Not applicable	Extension	01-May-07	12	21	65
TX	TX	Southwest	42 Enbridge Pipelines - Marquez Plant Line	Not applicable	Lateral	31-Mar-07	65	56	250
TX	TX	Southwest	43 Crosstex - North Texas 2007 Expansion	Not applicable	Compression	01-Apr-07	20	0	125
TX	TX	Southwest	44 Pecan Palo - Pinto County Gathering Header	Not applicable	Lateral	01-Nov-07	32	26	250
TX	TX	Southwest	45 Falcon - Worsham Steed Storage Pipeline	Not applicable	New Pipeline	01-Oct-07	60	63	450
OK	OK	Southwest	46 Southern Star - Waynoka Lateral	Blanket Certif	Lateral	01-Sep-07	11	15	175
OK	CO	Central	47 CIG Raton Basin 2007 Expansion	CP07-103	Looping/Compression	21-Sep-07	12	11	29
Subtotal							1,471	700	6,971
Western									
AZ	MX	Mexico	48 North Baja - Flow Reversal Phase I	CP06-61	Compression/Lateral	15-Dec-07	4	2	614
NV	NV	Western	49 Paiute - 2007 Expansion	Prior Notice	Looping	01-Nov-07	5	4	9
CA	CA	Western	50 Pacific Gas & Electric - Line 57C Lateral	Not applicable	Lateral	01-Nov-07	30	6	100
Subtotal							39	13	723
Total							4,302	1,663	14,859

¹ When announcing the design capacity for a proposed project or expansion, a pipeline company may provide either a volumetric (per cubic feet) or energy content (btu/therms) value. In this table, reported capacity figures are presented as volumetric (MMcf/d = million cubic feet per day) assuming a conversion factor of 1 MMcf/d = 1 thousand decatherms per day = 1 billion btu per day.

² May include placing additional compressor units at an existing station, the upgrading of existing units, or adding one or more new compressor stations to an existing system.

³ A lateral refers to a new pipeline segment built to interconnect a new customer to a local major pipeline or to a local distribution company mainline.

⁴ Looping refers to the installation of another segment of pipeline parallel to an existing pipeline segment and is used as a means of quickly increasing overall pipeline capacity and/or increasing line-packing (temporary storage) on a pipeline system.

⁵ Denotes an entirely new pipeline entity which is not an extension of, or a lateral off of, an existing pipeline system.

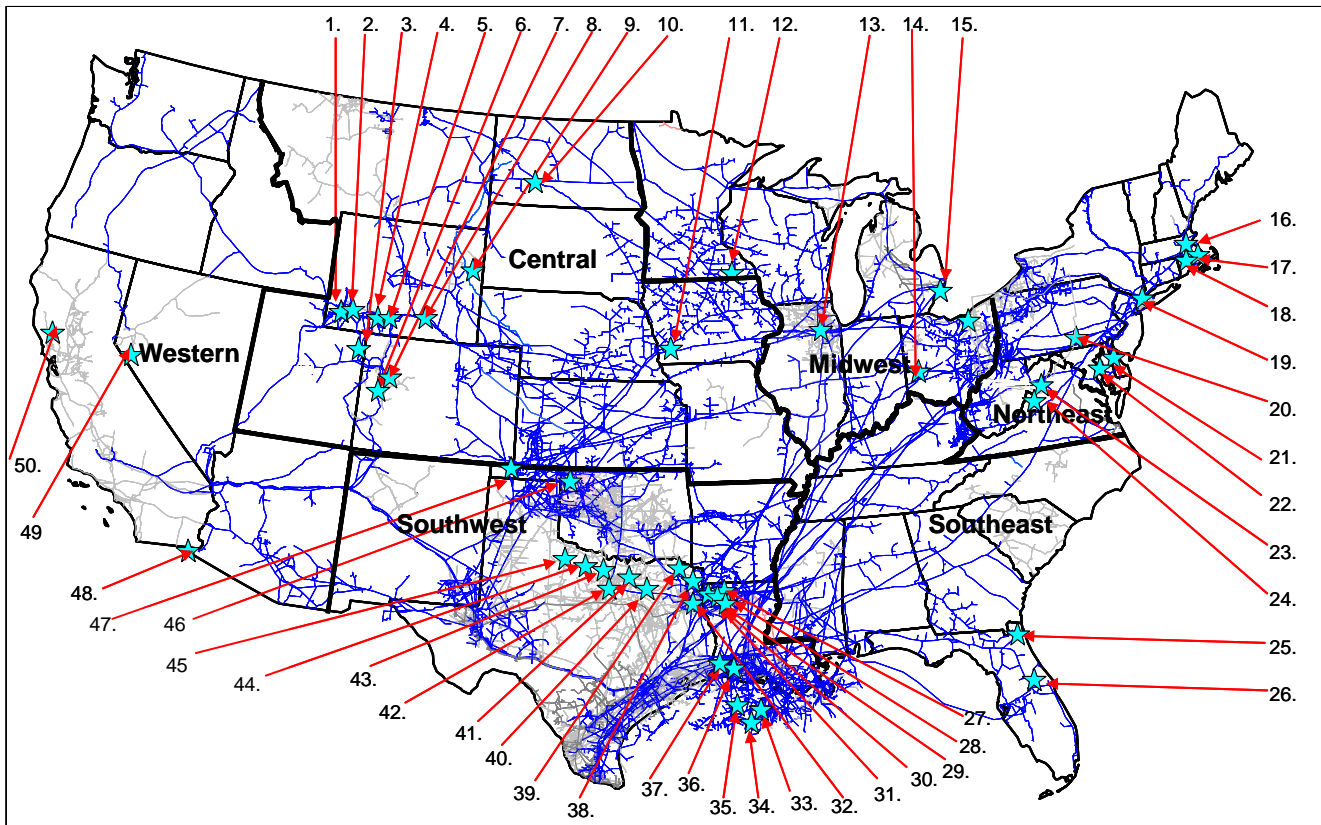
⁶ An extension refers to the building of a new section of pipeline to a service area beyond the original termination point of the transmission system.

GM = Gulf of Mexico.

Notes: Map Key references Figure 3. Interregional project is in **bold print**. In the table, a project that crosses interregional boundaries is included in the region in which it terminates. Offshore projects are included in the Southwest region. Totals may not sum due to independent rounding.

Source: Energy Information Administration, GasTran Natural Gas Transportation Information System, Natural Gas Pipeline Projects Database.

Figure 3. Locations of Natural Gas Pipeline Construction Projects Completed in 2007



Notes: Map keyed to Table 1. **Security:** EIA has determined that publication of this figure does not raise security concerns, based on the application of Federal Geographic Data Committee's *Guidelines for Providing Appropriate Access to Geospatial Data in Response to Security Concerns*; **Regions:** The six U.S. regions shown in this figure are based in whole or in part upon the 10 Federal regions as defined by the U.S. Department of Labor's Bureau of Labor Statistics.

Source: Energy Information Administration, GasTran Natural Gas Transportation Information System, Natural Gas Pipeline Projects Database.

fundamental market features, along with other factors such as a series of devastating hurricanes in 2004 and 2005, resulted in higher prices this decade relative to the 1980s and 1990s, leading to increased investment in infrastructure to access new supply sources and provide expanded flows to end-use customers.

Increased domestic natural gas production appears to have been the driving force behind most of the natural gas pipeline capacity additions of 2007 and much of the proposed additions slated for installation by 2010. Between 1998 and 2006, natural gas production in the most rapidly expanding production areas of the nation (northeast Texas, Wyoming, Colorado, and Utah (Figure 4)) increased by 96 percent overall, while proved natural gas reserves grew by 127 percent.² For the nation as a whole (including these areas), however, production decreased by 1 percent, while proved reserves increased by 29 percent.

Thirty-six of the 50 projects completed in 2007 involved expansion of the interstate natural gas pipeline network,

while the remainder improved capacity and transportation service on intrastate natural gas pipelines or new large-scale header (gathering lateral) systems designed to transport natural gas production from expanding natural gas fields. Of the 14 non-interstate natural gas pipeline projects completed during the year, about half involved adding new transportation capacity from developing production areas or constructing new intrastate pipeline sections to interconnect new production with the interstate pipeline network. Such projects were common in the expanding natural gas production areas of western Wyoming and Colorado and in the Barnett Shale formation of northeast Texas.

Many individual projects represent developments with industry-wide implications. For instance:

- The largest natural gas pipeline construction project completed in 2007 was Centerpoint Energy Company's Perryville expansion project, a 172-mile pipeline with 1.2 Bcf per day of capacity, linking Texas' intrastate pipeline systems to Perryville, Louisiana. The project is just one of several extensive infrastructure improvements that will transport increased supplies from the Barnett Shale and Bossier Sands areas on the interstate system.

²Based on data from the Energy Information Administration, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves Annual Report 2006 and 1998*, Table 8 (November 2007) and (November 1999). http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/crude_oil_natural_gas_reserves/reserves_historical.html

- In the Rocky Mountain area of western Colorado, Kinder Morgan Inc. and partners added 750 million cubic feet (MMcf) per day of capacity in the Rockies producing region. This project represented the first stage of the planned continental Rockies Express Pipeline system, which will eventually transport Wyoming/Colorado natural gas to northeastern U.S. markets. The second stage of the Rockies Express system, from eastern Colorado to eastern Missouri, was placed in full service in mid-2008 (portions located in Colorado and Kansas were placed in service in early 2008).
- In the Northeast, Algonquin Gas Transmission Company constructed a 16-mile, 32-inch-diameter pipeline to connect its pipeline network in New England to Excelerate Energy LLC's Northeast Gateway LNG terminal, which is located offshore from Gloucester, Massachusetts. This project marked the installation of the first pipeline designed to transport regasified LNG from a terminal in 2 decades.

United States will increase substantially between 2008 and 2010, although many projects compete for markets and typically not all proposed projects are constructed. Approximately 200 projects, representing a potential 10,100 miles of new large pipeline and approximately 103 Bcf per day of capacity, already are being planned or have been approved by U.S. regulatory authorities. If all were actually completed, about 2 percent more pipeline miles would be added to the national pipeline grid and overall network capacity would increase by more than 38 percent. Current estimates for the cost of this effort total close to \$28 billion.

National Overview

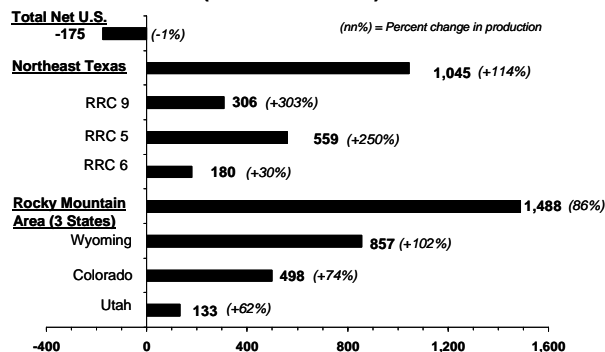
The transportation of natural gas through the U.S. pipeline grid occurs along several major corridors, such as from the Gulf of Mexico region to the Northeast or from the Rockies to the West Coast. Domestic pipeline transportation corridors from the Southwest to the Northeast and from the Southwest to Midwest have been the major paths for natural gas flows since the construction boom in the years following World War II. However, the network of pipelines is now nearly a continental phenomenon linking most production regions, including those in Canada, to multiple market centers and associated consuming regions.

In 2007, the vast majority of expansions and capacity additions were built to expand transportation capability in established corridors. However, project sponsors also embarked on creating a new corridor through the construction of the Rockies Express Pipeline, which will connect the Rockies with markets east of the Mississippi River, possibly reaching as far east as Pennsylvania when completed in 2010.

During 2007, there was also considerable progress in advancing LNG-associated pipelines in several different regions. Because much of the LNG construction activity is located in the Gulf of Mexico region, existing extensive infrastructure will be employed by project sponsors to get supplies to market. Yet, some network enhancements are needed, even in the Gulf. Additionally, significant new infrastructure is required for expanded and new terminals elsewhere in the country.

Overall, the interstate natural gas pipeline grid consists of more than 155 Bcf per day of capacity and approximately 212,000 miles of pipeline (Table 2). Interstate pipeline companies are regulated by the Federal Energy Regulatory Commission (FERC) and are mostly transportation-service companies under current regulations. Additionally, substantial pipeline capacity exists in Texas, Louisiana, and other States that is considered "intrastate" and, for many purposes, regulated by State authorities. Unlike FERC-regulated entities, intrastate pipeline operators often own supplies transported on their systems. EIA estimates

Figure 4. Natural Gas Production Difference, 1998 to 2006 (Billion cubic feet)



Note: RRC = Texas Railroad Commission District.
 Source: Energy Information Administration, U.S. Crude Oil and Natural Gas, and Natural Gas Liquids Reserves: 1998 and 2006 Annual Reports.

These construction projects, as well as other transportation additions out of North Texas and Rockies producing regions and additions related to LNG projects, will likely have a long-lasting impact on continental natural gas pricing and flows. For example, prices in western U.S. markets for much of this decade were substantially lower than in eastern U.S. markets because of constrained transportation for growing production, particularly out of the Rockies producing region. Regional price differences likely will go through a period of adjustment once the Rockies Express Pipeline is constructed. Already in 2008 (from January through April), the average price in Rockies trading locations was within 90 cents of the Henry Hub average price, compared with discounts exceeding \$1.40 during the first third of the year in 2007.

Currently proposed natural gas pipeline expansion projects indicate the level of pipeline construction activity in the

Table 2. Thirty Largest U.S. Interstate Natural Gas Pipeline Systems, 2006
 (Ranked by system capacity, million cubic feet per day (MMcf/d))

Pipeline Name	Market Regions Served	Primary Supply Regions	States in Which Pipeline Operates	Transportation volumes (billion cubic feet)	System Capacity (MMcf/d) ¹	System Mileage
Columbia Gas Transmission Co.	Northeast	Southwest, Appalachia	DE, PA, MD, KY, NC, NJ, NY, OH, VA, WV	1,792	9,000	10,318
Transcontinental Gas Pipeline Co.	Northeast, Southeast	Southwest	AL, GA, LA, MD, MS, NC, NY, SC, TX, VA, GM	2,751	8,161	10,412
Northern Natural Gas Co.	Central, Midwest	Southwest	IA, IL, KS, NE, NM, OK, SD, TX, WI, GM	950	7,200	15,743
ANR Pipeline Co.	Midwest	Southwest	AR, IA, IL, IN, KS, KY, LA, MI, MO, MS, NE, OH, OK, WI, GM	2,058	7,129	10,600
Texas Eastern Transmission Corp.	Northeast	Southwest	AL, AR, IL, IN, KS, KY, LA, MI, MO, MS, NJ, NY, OH, OK, PA, TX, WV, GM	1,241	6,672	9,176
Tennessee Gas Pipeline Co.	Northeast, Midwest	Southwest, Canada	AR, KY, LA, MA, NY, OH, PA, TN, TX, WV, GM	1,678	6,329	14,100
El Paso Natural Gas Co.	Western, Southwest	Southwest	AZ, CO, NM, TX	1,636	6,152	10,295
Dominion Transmission Co.	Northeast	Southwest, Appalachia	PA, MD, NY, OH, VA, WV	585	5,934	3,392
Natural Gas Pipeline Co. of America	Midwest	Southwest	AR, IA, IL, KS, LA, MO, NE, OK, TX, GM	1,709	4,508	9,297
Northwest Pipeline Corp.	Western	Canada, Central	CO, ID, OR, UT, WA, WY	676	4,500	3,865
Southern Natural Gas Co.	Southeast	Southwest	AL, GA, LA, MS, SC, TN, TX, GM	805	3,532	7,439
Centerpoint Gas Transmission Co.	Southwest	Southwest	AR, KS, LA, OK, TX	671	3,432	6,170
Colorado Interstate Gas Co.	Central	Central, Southwest	CO, KS, OK, TX, WY	733	3,170	3,979
Texas Gas Transmission Corp.	Midwest	Southwest	AR, IN, KY, LA, MS, OH, TN	725	3,098	5,609
Great Lakes Gas Transmission Co.	Midwest	Canada	MI, MN, WI	819	2,958	2,115
Gulf South Pipeline Co.	Southeast, Southwest	Southwest	AL, FL, LA, MS, TX, GM	510	2,946	6,532
Panhandle Eastern Pipeline Co.	Midwest	Southwest	IL, IN, KS, MI, MO, OH, OK, TX	579	2,840	6,376
Gas Transmission Northwest Corp.	Western	Canada	ID, OR, WA	805	2,636	1,356
Northern Border Pipeline Co.	Midwest, Central	Canada	IA, IL, IN, MN, MT, ND, SD	858	2,626	1,400
Southern Star Central Pipeline Co.	Central	Central	CO, KS, MO, NE, OK, TX, WY	317	2,526	5,725
Wyoming Interstate Gas Co.	Central	Central	CO, WY	699	2,330	725
National Fuel Gas Supply Co.	Northeast	Canada, Appalachia	NY, PA	309	2,312	1,502
Florida Gas Transmission Co.	Southeast	Southwest	AL, FL, LA, MS, TX, GM	737	2,206	4,869
Questar Pipeline Co.	Central	Central	CO, UT, WY	384	2,192	1,722
Algonquin Gas Transmission Co.	Northeast	Southwest	CT, MA, NJ, NY, RI	330	2,184	1,103
Columbia Gulf Transmission Co.	Southeast, Northeast	Southwest	KY, LA, MS, TN, GM	1,042	2,156	4,124
Alliance Pipeline Co. (US)	Midwest	Canada	ND, MN, IA, IL	646	2,053	888
Transwestern Gas Co.	Western	Southwest, Central	AZ, CO, NM, TX	629	2,048	2,362
Kern River Gas Transmission Co.	Western	Central	CA, NV, UT, WY	786	1,833	1,680
High Island Offshore System	Southwest	Gulf of Mexico	LA, GM	185	1,800	204
Sub-total				27,645	116,463	163,078
Other Interstate Systems (74)	--	--	--	8,433	39,000	49,389
Total				36,078	155,463	212,467

¹ Capacity levels are reported to the Federal Energy Regulatory Commission (FERC) in Btu, decatherms, or volumetric units. In this table and report, reported capacity figures are presented as volumetric (MMcf/d = million cubic feet per day) assuming a conversion factor of 1 MMcf/d = 1 thousand decatherms per day = 1 billion btus per day.

Note: GM = Gulf of Mexico.

Source: FERC, **Mileage & Transport:** FERC Form 2 & 2A "Major and Non-major Natural Gas Pipeline Annual Report," **Capacity:** FERC Annual Peak Day Capacity Report Section 284.13(d). Transportation volumes (Line 5 of Gas Accounts in Form 2) may not represent all throughput on a pipeline during the year.

that intrastate capacity exceeds 32 Bcf per day and intrastate pipeline systems extend over 76,000 miles.³

Pipeline companies are often operated as individual entities, although many “families” of pipelines are owned by larger corporations. El Paso Corporation is currently the owner of the largest family of pipelines, consisting of 43,000 miles of pipeline. Pipeline companies owned by El Paso include: Tennessee Gas Pipeline, Colorado Interstate Gas, Wyoming Interstate Gas, and El Paso Natural Gas. Kinder Morgan Incorporated, one of the developers of Rockies Express, also owns a variety of interstate and intrastate pipelines such as Natural Gas Pipeline of America and KM Interstate Transmission. Williams Companies owns Transcontinental Gas Pipeline Co. and Northwest Pipeline Corp.

Currently, the pipeline with the greatest deliverability (potential volume that can be delivered to customers at full operations) is the Columbia Gas Transmission system, which has 10,318 miles of pipeline and can transport up to 9.0 Bcf per day. Columbia Gas, which is owned by Indiana-based NiSource Inc., transports supplies to customers in the Northeast from production fields in the Appalachian Basin, as well as from the Gulf of Mexico region through a connection with affiliate Columbia Gulf Transmission at Leach, Kentucky.

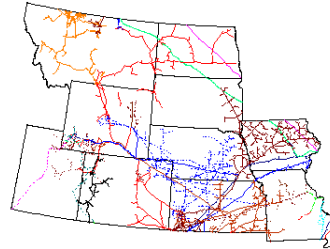
In 2007, only 4 of the 50 completed projects crossed regional boundaries, reflecting an emphasis on localized expansions or upgrades. Additions to interregional capacity during the year totaled only 1.1 Bcf per day overall, but they still totaled significantly more than the 2006 level of just 155 MMcf per day (two projects added to interregional capacity). The non-interstate projects completed in 2007 represented new intrastate natural gas pipelines or gathering system laterals designed to alleviate potential and developing natural gas pipeline capacity constraints in expanding production areas such as East Texas and the Rocky Mountain States of Colorado, Utah, and Wyoming.

In 2007, the largest 10 of the 50 projects accounted for 52 percent of added capacity (7.7 Bcf per day); most of these projects were production-oriented extensions and system improvements to interstate pipelines. In fact, 28 of the 50 projects completed in 2007 (representing more than 10.9 Bcf per day of capacity) were related to expanding supplies and improvements to supply-area transportation infrastructure. Eighteen projects, accounting for about 2.7 Bcf per day of new capacity, were oriented toward market areas; the other four projects, accounting for 3.4 Bcf per day of new pipeline capacity, were associated with laterals for new storage capacity.

³Energy Information Administration, *Changes in U.S. Natural Gas Transportation Infrastructure in 2005*, Table 2 (June 2006), http://www.eia.doe.gov/pub/oil_gas/natural_gas/feature_articles/2006/ngtrans/ngtrans.pdf

Regional Overview

Central Region



With production investment and natural gas supplies continuing to increase in the Rockies, infrastructure expansion has become critical for producers to transport supplies to markets. In 2007,

approximately 4.3 Bcf per day of capacity and 619 miles of pipeline were added to the Central region’s pipeline infrastructure. The additional capacity in the Central region was more than the capacity of other regional additions combined, excluding the Southwest region (where natural gas infrastructure is most concentrated).

Altogether, the infrastructure improvements in the Central region in 2007 are estimated to have cost more than \$1.6 billion. Twelve projects were completed, with all but two projects representing improvements to interstate pipeline infrastructure. In a couple of instances, the projects were transportation links to move natural gas to a regional market center or hub for sales to either end users or marketers (but in either case, further transportation would be required).

The Central region experienced significant infrastructure growth in the past several years as producers ramped supplies, including unconventional production in the form of coalbed methane. The total number of projects completed in the region in 2007 was slightly more than in 2006 (when nine projects were completed, representing additions of about 3.9 Bcf per day). Between 1998 and 2007, 18.3 Bcf per day of capacity was added to the Central region’s grid.

Again, by far the most significant infrastructure development taking place in the Central region is the construction of Rockies Express, a FERC-regulated interstate pipeline with a planned capacity of 1.8 Bcf per day. Rockies Express will transport supplies from the States of Colorado and Wyoming to a terminus in Ohio (and possibly Pennsylvania) by 2009. The first segment of the massive pipeline, which is the largest in the United States for more than two decades, was completed in 2006. The 2006 project, originally called the “Entrega Pipeline,” consisted of laying 136 miles of 36-inch pipeline from Meeker Hub in Colorado to the Wamsutter Hub in Wyoming. From there, the pipeline sponsors in 2007 also constructed a 192-mile, 42-inch pipeline to the Cheyenne Hub in Colorado. This regional construction eventually provided the basis for the proposed pipeline out of the

Central region and into the Midwest (Rockies Express-West) and, finally, the future extension of the pipeline from the Midwest to the Northeast regions (Rockies Express-East).

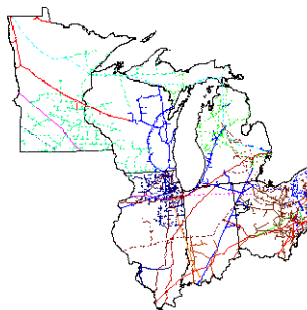
Along its proposed route, Rockies Express will interconnect with more than 25 intrastate and interstate pipelines transporting natural gas from the Gulf region as well as the Mid-continent, allowing for a readjustment of continental flows and price competition between Rockies production and supplies from other parts of the country. The 713-mile Rockies Express-West segment of the pipeline, which runs from the Cheyenne Hub in Wyoming to an interconnection with Panhandle Eastern Pipeline Company in Audrain County, Missouri, received FERC approval on April 19, 2007, and was completed in May 2008. Rockies Express-East, which was approved by FERC on May 30, 2008, would extend the pipeline another 638 miles to the Clarington Hub in Monroe County, Ohio. The Rockies Express-East portion is expected to reach full service in June 2009.

Rockies Express also provides an outlet to the west for Rocky Mountain supplies, although for the most part this part of the pipeline will be “virtual,” in that the project sponsors have leased capacity on the existing Overthrust Pipeline Company (owned by Questar Corporation). The extension, from Wamsutter, Wyoming, to the Opal Hub in Lincoln County, Wyoming, was authorized by FERC on April 19, 2007, and is already in service with up to 1.5 Bcf per day of capacity.

Also in the Central region, Jonah Gas Gathering Company, a joint venture of TEPPCO Partners and Enterprise Products Partners, in 2007 completed a \$300-million project adding 160,000 horsepower of compression to the Jonah Gas Gathering System in the Jonah and Pinedale production fields in southwest Wyoming. The additional compression was part of a large pipeline looping project known as the “Phase V” expansion project, which increased capacity of the gathering system from 1.5 Bcf per day of natural gas to 2.4 Bcf per day. The expansion included 75 miles of 36-inch pipe and 12 miles of 24-inch pipe leading from the Jonah and Pinedale fields to processing plants and interstate pipelines near Opal, Wyoming.

Also during 2007, Questar Corp. completed its \$108-million Southern System Expansion II project, bolstering westbound deliveries of Rocky Mountain natural gas to Goshen, Utah, where Questar Pipeline interconnects with the Kern River Gas Transmission Company system. Questar constructed approximately 60 miles of 24-inch pipeline and modified two existing compressor stations in Carbon and Uintah counties in Utah, providing the capability to transport up to an additional 175 MMcf per day of natural gas from various receipt points on Questar's southern pipeline system to Questar's Main Line.

Midwest Region



Two pipeline projects were completed in the Midwest region in 2007, accounting for just 460 MMcf per day of new capacity and 13 miles of added pipeline. This was the lowest annual increase in capacity in the region since at least 1998.

The larger project (in cost and added capacity) was a new pipeline lateral in the Chicago area constructed by an affiliate of Kinder Morgan Inc. Local utility Peoples Gas Light & Coke Company contracted for all 360 MMcf of daily capacity on the 28-mile Kinder Morgan Illinois Pipeline, which connects Beecher, Illinois, to the Chicago city limits near Burnham, Illinois. The project combined construction of a new pipeline and a long-term capacity lease on Natural Gas Pipeline Company of America (NGPL), a wholly-owned subsidiary of Kinder Morgan.

The second project in the Midwest was completed by Columbia Gas of Ohio, owned by NiSource, Inc. Columbia, which is a local distribution company, added 100 MMcf of daily capacity to a large distribution artery in Delaware County, Ohio, through the addition of compression and new pipeline mileage at a cost of \$14 million.

Pipeline expansion in the Midwest region is expected to remain at a relatively low level during 2008. However, pipeline construction activity is expected to increase significantly in 2009 and 2010, particularly with the completion of the eastern portion of Rockies Express. Based on current plans, at least a portion of Rockies Express-East will be completed by January 2009, bringing an additional 1.8 Bcf per day of capacity into the Midwest to a terminus at Clarington Hub in Ohio (Table 3).

Significant capacity additions in the Midwest region will occur with expansions of NGPL and Rockies Express into the Chicago area. The two pipeline companies, both of which are owned at least partially by Kinder Morgan, will expand their respective systems and also construct a joint pipeline, expected to be completed in 2008. The system improvement will provide up to 750 MMcf per day of incremental capacity from production areas in the Rockies through the Midwest to Michigan. Supplies for this project likely would come from the Rockies producing fields. However, the viability of the proposed project will depend on growth in Rockies production, as well as competition from other pipeline companies that have proposed other outlets for Rockies production.

In 2008, Guardian Pipeline L.L.C., owner of a pipeline which entered operations in 2002, will provide service

Table 3. Largest 20 Planned Natural Gas Pipeline Projects for 2008, 2009, and 2010, by Level of Added Capacity

Year Planned	State Begin	State End	Region End	Developer	Project Name	FERC Docket Number	Type of Project	Status (as of March 2008)	Miles	Additional Capacity (MMcft/d) ¹	
2008	LA	LA	Southwest	Cheniere Creole Trail LLP	Sabine Pass LNG Line	CP07-426	Lateral	Completed	16	2,700	
2008	TX	TX	Southwest	Freeport LNG Development LP	Brazoria Interconnector Gas Pipeline	Not applicable	Lateral	Completed	30	2,600	
2008	CO	CO	Central	Questar Pipeline Co	White River Header Pipeline	PF08-3	Lateral	Applied (NEPA)	7	2,500	
2008	TX	TX	Southwest	NGS Investments LLC	Tres Palacios Storage Lateral	CP07-90	Interconnection	Construction	42	2,500	
2008	LA	LA	Southwest	Sempra Energy Inc	Cameron Interstate Pipeline	CP05-119	Lateral	Construction	36	2,350	
2008	LA	LA	Southwest	Kinder Morgan Louisiana PL Co	Sabine Pass LNG Leg 1	CP06-449	New Pipeline	Construction	135	2,130	
2008	TX	TX	Southwest	Freeport LNG Development LP	Freeport LNG Pipeline	CP03-75	Lateral	Completed	10	1,750	
2008	TX	MS	Southeast	Gulf South Pipeline Co	Texas to Mississippi Expansion	CP06-446	Compression/New pipeline	Completed	243	1,700	
2008	CO	MO	Central	Kinder Morgan Energy Partners	Rockies Express (REX-West)	CP06-354	New Pipeline	Completed	718	1,500	
2008	LA	MS	Southeast	Southeast Supply Header LLC	Southeast Supply Header Pipeline	CP07-44	New Pipeline	Construction	270	1,400	
2008	MS	MS	Southeast	Mississippi Hub LLC	Mississippi Hub Storage Lateral	CP07-04	Lateral	Construction	11	1,200	
2008	LA	LA	Southwest	Port Barre Investments LLC	Bobcat Storage Lateral	CP06-66/67/68	Laterals	Construction	20	1,200	
2008	TX	TX	Southwest	Enterprise Products Partners	Enterprise Sherman Extension	Not applicable	Extension	Construction	178	1,100	
2008	MS	AL	Southeast	SGR Holding Corporation	Southern Pines Florida/Transco Line	CP02-229	New Pipeline	Construction	26	1,000	
2008	MS	MS	Southeast	Gulf South Pipeline Co	Gulf Crossing Mississippi Loop	CP07-401	Looping/Compression	Applied	18	1,000	
2008	MS	MS	Southeast	SGR Holding Corporation	Southern Pines Destin Line	CP02-229	New Pipeline	Construction	3	1,000	
2008	CO	CO	Central	Colorado Interstate Gas Co	CIG High Plains Project	CP07-207	New line	Construction	164	900	
2008	MD	VA	Northeast	Dominion Cove Point LNG PL Co	Cove Point PL 2008 Expansion	CP05-132	Looping/Compression	Construction	48	800	
2008	PA	MD	Northeast	Dominion Transmission Inc	Pennsylvania Expansion	CP05-131	Looping/Extension	Construction	113	700	
2008	TX	TX	Southwest	Enbridge Energy Pipeline Co	East Texas System Extension	Not applicable	Extension	Construction	190	700	
2008	--	--	--	--	Others (76 projects)	--	--	--	2,129	16,689	
Total									4,407	47,419	
2009	MS	MS	Southeast	NGS Investments LLC	Leaf River Storage Headers	CP08-8	Lateral	Applied	44	2,500	
2009	TX	TX	Southwest	Golden Pass LNG Pipeline Loop	Golden Pass Southern System	CP04-400	Lateral	Approved	33	2,500	
2009	LA	LA	Southwest	Cheniere Creole Trail LLP	Creole Trail Pipeline	CP07-426	Lateral	Construction	117	2,000	
2009	LA	LA	Southwest	Eagle Energy Partners	Eagle Hub Header	None yet	New Line	Planning	40	2,000	
2009	TX	LA	Southwest	NGS Energy LLC	Gulf Coast Connector	Planning	New line	Announced	40	2,000	
2009	MO	OH	Midwest	Kinder Morgan Energy Partners	Rockies Express (REX East) 1	CP07-208	New Pipeline	Applied	393	1,800	
2009	OK	LA	Southwest	Gulf Crossing Pipeline Co LLC	Gulf Crossing Pipeline Project	CP07-398	New Pipeline	Applied	356	1,730	
2009	LA	LA	Southwest	Spectra Energy Inc (MHP)	Egan Storage Lateral Loop	CP07-88	Looping	Applied	17	1,700	
2009	MA	CT	Northeast	Algonquin Gas Trans Co	Algonquin East-to-West (EW2) Expansion	PF07-15	Looping/Compression	Applied (NEPA)	46	1,450	
2009	OK	AL	Southeast	Midcontinent Express Pipeline	Midcontinent Express System Project	CP08-06	New Pipeline	Applied	504	1,400	
2009	AR	MS	Southeast	Texas Gas Transmission Co	Texas Gas Fayetteville Lateral	CP07-417	New Pipeline	Applied	166	1,100	
2009	TX	TX	Southwest	Energy Transfer Co	ET Texas Independence Pipeline	Not applicable	New Pipeline	Approved	160	1,100	
2009	LA	LA	Southwest	Kinder Morgan Louisiana PL Co	Sabine Pass LNG Leg 2	CP06-449	Lateral	Approved	1	1,065	
2009	TX	MS	Southeast	Enbridge Energy Pipeline Co	Texas-Mississippi Pipeline	None yet	New Pipeline	Announced	330	1,000	
2009	TX	TX	Southwest	ENSTOR Energy	Houston Energy Center Header Line	CP07-390	New Pipeline	Approved	2	1,000	
2009	MS	MS	Southeast	Texas Gas Transmission Co	Greenville Lateral	CP07-417	New Pipeline	Applied	96	768	
2009	CO	CO	Central	EnCana Oil & Gas Co	Collbran Valley Pipeline	Not applicable	Lateral Gathering	Approved	26	650	
2009	PA	WV	Northeast	Chestnut Ridge Storage LLC	Uniontown Lateral	CP08-36	Lateral	Applied	17	500	
2009	MA	MA	Northeast	Excelerate Energy LLC	Northeast LNG Line Lateral	Coast guard	Lateral	Applied	12	500	
2009	TX	MX	Mexico	Sonora Pipeline LLC	Burgos Hub Mission Line (US Portion)	CP07-74	New Border Crossing	Approved	16	500	
2009	--	--	--	--	Others (47 projects)	--	--	--	1,278	7,199	
Total									3,696	34,462	
2010	GM	AL	Southeast	McMoran Exploration Inc	MPEH Pipeline Project	Not applicable	New Pipeline	Approved	97	1,600	
2010	MD	PA	Northeast	AES Corp	AES Mid-Atlantic Express Project	CP07-62	Looping/Compression	Applied	88	1,500	
2010	TX	TX	Southwest	4Gas Texas LLC	Vista del Sol LNG Line	CP04-405	Lateral	Approved	25	1,400	
2010	MS	MS	Southeast	Spectra Energy Inc (MHP)	MHP SESH Covich Storage Lateral	CP02-25	Lateral	Approved	13	1,300	
2010	OR	OR	Western	Northern Star Natural Gas LLC	Bradwood Landing Pipeline	CP06-366	Lateral	Applied	34	1,300	
2010	GA	GA	Southeast	Southern Natural Gas Co	SONAT Elba Express III	CP06-470	Extension	Approved	189	1,175	
2010	WY	IA	Central	Kinder Morgan Energy Partners	REX/NGPL Phase 1	None yet	New Line	Proposed	175	1,000	
2010	IA	IL	Midwest	Kinder Morgan Energy Partners	REX/NGPL Joint Project Phase 2	None yet	New Line	Proposed	240	1,000	
2010	LA	LA	Southwest	Liberty Gas Storage LLC	Liberty Storage Pipeline Expansion	PF08-07	Lateral	Applied (NEPA)	5	1,000	
2010	TX	TX	Southwest	Calhoun LNG Inc	Point Comfort LNG Line	CP05-380	Lateral	Approved	27	1,000	
2010	FL	FL	Southeast	Calypso U.S. Pipeline LLC	Calypso Pipeline Project	CP01-409	New Pipeline	Approved	20	832	
2010	LA	LA	Southwest	Stark Gas Storage LLC	Stark Storage Pipeline	CP05-08	Lateral	Construction	35	800	
2010	OH	NY	Northeast	National Fuel Gas Supply Corp	NFGS West-to-East Project	None yet	New Pipeline	Announced	324	700	
2010	AL	AL	Southeast	Transcontinental Gas P L Co	Transco Mobile Bay Lateral Expansion	None yet	Looping/Compression	Planning	0	700	
2010	OH	PA	Northeast	Transcontinental Gas P L Co	Transco Rockies Connector	None yet	New Line	Planning	250	688	
2010	PA	NY	Northeast	Transcontinental Gas P L Co	Transco Northeast Connector Expansion	None yet	Looping/Compression	Planning	0	668	
2010	ME	ME	Northeast	Downeast LNG LLC	Downeast LNG Lateral	CP07-52/55	Lateral	Applied	30	625	
2010	CN	CT	Northeast	Iroquois Pipeline Co	Iroquois MetroExpress Project	None yet	Looping/Compression	Planning	0	500	
2010	PA	NY	Northeast	NiSource Gas Transmission & St	New Penn Project	None yet	New Pipeline	Announced	82	500	
2010	GA	GA	Southeast	Southern Natural Gas Co	SONAT SSEIII Phase 1	PF08-13	Looping/Replacement	Applied (NEPA)	42	370	
2010	--	--	--	--	Others (15 projects)	--	--	--	279	2,612	
Total									1,955	21,270	
3-Year Total									10,057	103,151	
Total									198 Projects	10,057	103,151

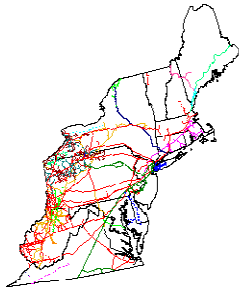
¹ Companies report capacity levels are in Btus, decatherms, or volumetric units. In this table and report, reported capacity figures are presented as volumetric (MMcft/d = million cubic feet per day) assuming a conversion factor of 1 MMcft/d = 1 thousand decatherms per day = 1 billion btus per day.

MMcft/d = million cubic feet per day. GM = Gulf of Mexico.

Source: Energy Information Administration, GasTran Natural Gas Transportation Information System, Natural Gas Pipeline Projects Database, as of May 31, 2008.

to Green Bay, Wisconsin, for the first time through completion of a 106-mile extension from Guardian's current terminus near Ionia, Wisconsin. The expansion would add about 550 MMcf per day of capacity to the Green Bay area at a cost of between \$200 and \$250 million.

Northeast Region



Nine pipeline expansions were completed in the Northeast region in 2007, representing 1.7 Bcf per day of additional capacity and 134 miles of new pipeline. The added capacity during 2007 was greater than that in each of the previous 2 years for the region. Although pipeline construction activity has been relatively limited in recent years compared with other regions, the increased activity in 2007 likely will be followed up by growing construction activity through 2010 and beyond, even if some planned projects are not completed (Table 4).

The largest project completed in the Northeast during 2007 in terms of investment cost was an expansion of Algonquin Gas Transmission to transport supplies related to new imports of LNG. Algonquin placed into service its 16-mile link to the Northeast Gateway LNG port offshore Massachusetts. This \$180-million, 32-inch lateral was built to transport up to 800 MMcf per day of regasified supplies to customers in the New England market from the new port, which is owned by Exceleerate Energy.

Notwithstanding this LNG-related project, pipeline expansions in the Northeast region in 2007 served primarily to improve service within the region itself, as building long-haul capacity into the region has proved difficult in the past few years in part because of opposition from local communities and environmental organizations. While all of the projects completed in 2007 were related to interstate pipelines, they did not extend beyond the Northeast region.

Transcontinental Gas Pipeline Corp. (Transco) completed a \$162-million system expansion to improve access to Long Island, New York, customers. The "Leidy to Long Island" project involved construction of 15 miles of 20-inch pipeline and related improvements that expanded Transco's pipeline system by 100 MMcf per day. The project, first proposed 3 years ago, is based on a 20-year binding precedent agreement executed by Transco and KeySpan.

Two major market-area expansions were completed by Tennessee Gas Pipeline Company (TGP) and Texas Eastern Gas Transmission Corp. TGP placed its "Northeast ConneXion – New England" expansion project into service, increasing compression at six existing stations and adding one new compressor station, in order to provide an additional

136 MMcf per day of capacity in the New England market area. The Texas Eastern Incremental Market Expansion II Project (TIME II) required 6.4 miles of 36-inch pipe in Somerset and Bedford counties, Pennsylvania; 4.9 miles of 36-inch pipeline replacement in Franklin County, Pennsylvania; 10.4 miles of 36-inch pipeline replacement in Bucks County, Pennsylvania; and a new 16,000 horsepower electric compression unit and compressor station in Heidlersburg, Pennsylvania.

The level of pipeline construction in the Northeast is likely to increase in the next few years as long-planned system expansions take place and flows from new LNG facilities and existing facility expansions commence. Thirty-two projects, totaling as much as 8.5 Bcf per day of new capacity, have been announced, submitted for regulatory review, or approved for development during 2008 and 2009. However, it is far from certain how many of these projects will be completed, especially those that have yet to be filed with the FERC.

The Millennium Pipeline, a 182-mile, 30-inch line across southern New York, is finally under construction after many years of planning and regulatory review. The final, revised project will serve markets along its route through the lower Hudson Valley, as well as provide service to New York City markets through its pipeline interconnections. Millennium, which is owned by NiSource, Inc., KeySpan Corporation, and DTE Energy Company, is expected to be in service in November 2008 and transport up to 525 MMcf per day.

Besides the Northeast Gateway pipeline, the Northeast will be the destination of new LNG volumes from the expansion of the Cove Point LNG terminal, owned by Dominion Corp. Dominion has started construction of a 48-mile pipeline that would provide deliveries of regasified LNG from the expanding LNG facility located in Southern Maryland on the Chesapeake Bay. The 37-inch Cove Point Pipeline, expected to be completed in 2008, will extend 48 miles west from the marine terminal to connections with interstate pipelines in Virginia.

Also under consideration are numerous proposals to expand existing infrastructure to provide an outlet for increased supplies from the Rockies, once the Rockies Express is complete. National Fuel Gas Company has proposed a 324-mile pipeline to deliver Rockies gas from Ohio to Corning, New York, while Texas Eastern Transmission Company's Northern Bridge expansion would provide incremental capacity from Ohio to Oakford in the Philadelphia-Camden metropolitan area. Another proposed outlet for increased supplies from the Rockies is Williams Companies' proposed Rockies Connector Pipeline, which would extend approximately 250 miles, connecting its Transco Station 195 in York County, Pennsylvania, to the eastern terminus of the Rockies Express in Ohio. The owners of the Rockies Express Pipeline have also proposed extending the pipeline further east to Linden, New Jersey, by 2011.

Table 4. Recent and Proposed Regional Natural Gas Pipeline Additions and Expansions, 2006 - 2010

Region (within or into)	Completed in 2006			Completed in 2007			Scheduled/Proposed for 2008 ¹			Proposed for 2009 ¹			Proposed for 2010 ¹		
	Added Capacity (MMcf/d) ²	Estimated Cost (Million Dollars)	Miles	Added Capacity (MMcf/d) ²	Estimated Cost (Million Dollars)	Miles	Added Capacity (MMcf/d) ²	Estimated Cost (Million Dollars)	Miles	Added Capacity (MMcf/d) ²	Estimated Cost (Million Dollars)	Miles	Added Capacity (MMcf/d) ²	Estimated Cost (Million Dollars)	Miles
Central	3,873	823	550	4,280	1,607	619	6,833	2,233	1,200	1,472	309	319	1,725	1,030	279
Midwest	478	127	56	460	27	13	848	354	160	2,151	2,693	694	1,000	1,200	240
Northeast	1,082	166	116	1,749	784	134	4,415	2,001	478	4,194	752	151	6,236	2,241	888
Southeast	430	42	32	430	304	184	10,295	3,558	924	7,480	2,622	1,195	6,464	716	397
Southwest	6,792	1,124	822	6,971	1,471	700	24,316	3,800	1,380	17,590	3,140	1,222	4,200	199	92
Western	50	11	6	723	39	13	651	691	264	90	24	46	1,645	200	59
Mexico/Canada	0	0	0	245	70	0	60	1	0	1,485	82	69	0	0	0
U.S. Total	12,705	2,293	1,582	14,859	4,302	1,663	47,419	12,638	4,407	34,462	9,622	3,696	21,270	5,586	1,955

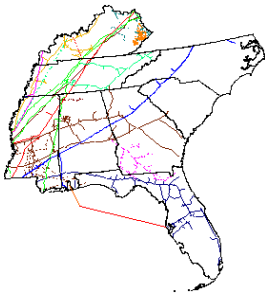
¹ Only projects that were approved or under construction prior to May 1, 2008, and which have a proposed completion date in 2008 are included under "Scheduled for 2008." All other projects that have a proposed completion date in 2008 through 2010, other than those canceled or on-hold, are included under 2009 or 2010.

² When announcing the design capacity for a proposed project or expansion, a pipeline company may provide either a volumetric (per cubic feet) or energy content (btus/therms) value. In this table, reported capacity figures are presented as volumetric (MMcf/d = million cubic feet per day) assuming a conversion factor of 1 MMcf/d = 1 thousand decatherms per day = 1 billion btus per day.

Notes: Excludes projects on hold as of December 2007. In the table, a project that crosses interregional boundaries is included in the region in which it terminates. Offshore Gulf of Mexico projects are included in the Southwest region. Totals may not agree with those in Tables 1 or 3 because of independent rounding.

Source: Energy Information Administration, GasTran Natural Gas Transportation Information System, Natural Gas Pipeline Projects Database, as of May 31, 2008.

Southeast



Two natural gas pipeline expansion projects were completed in the Southeast in 2007, bringing an additional 430 MMcf per day of capacity to the region's pipeline infrastructure. With the exception of pipeline construction activity during 2006, the 2007 level of capacity additions was the lowest level of yearly additions at least

since 1998. However, the lull in pipeline construction activity in the region will likely prove temporary with construction activity related to several proposed conventional storage sites and added import capacity in the form of LNG facilities proposed for construction.

The larger of the capacity additions in the Southeast in 2007 was related to the ongoing expansion of the El Paso Corp.-owned Southern LNG terminal, located on Elba Island, Georgia. Southern Natural Gas Company (SNG), which is the interstate pipeline network that connects to the LNG terminal and also is owned by El Paso Corp., completed a first phase of a new pipeline from the terminal to Florida. In 2007, the new 167-mile Cypress Pipeline extended the SNG system into southern Georgia and northern Florida, interconnecting with the Florida Gas Transmission system near Jacksonville, Florida. At a cost of \$240 million, a project was completed adding 335 MMcf per day of capacity from the Southern LNG terminal to Cypress.

Construction activities for Cypress Pipeline will continue between 2008 and 2010 in two additional phases. Engineering and procurement activities are currently underway for Phase II of the project, when compression facilities will be installed to add 116 MMcf per day of capacity to the pipeline starting in 2008. The third phase is intended to boost the new pipeline's capacity through the installation of additional compressor units, resulting in over

100 MMcf per day of incremental transportation capability.

The growing natural gas market in Florida, which includes new and planned natural-gas-fired electric power generation plants, has now required seven expansions of the Florida Gas Transmission Company (FGT) system. The Phase VII expansion, completed in 2007, required the construction of 17 miles of 36-inch pipeline in several segments along an existing right-of-way, as well as installation of 9,800 horsepower of compression.

Pipeline construction activities continue related to proposed development of LNG facilities for direct delivery into Florida. Earlier this decade, these pipeline proposals chiefly consisted of plans to link LNG terminals in the Bahamas to the Florida market. While the FERC-jurisdictional portions of these projects have been approved, little progress has been made by project sponsors in getting Bahamian authorities to permit the building of the LNG facilities that would feed the proposed natural gas pipelines.

As a result of delays in the Bahamas and for other reasons, Suez Energy North America Inc. has revised its LNG project design and plans to receive LNG supplies from a proposed LNG offloading terminal to be located offshore southern Florida. Suez-owned Calypso LNG LLC intends develop a submerged buoy system located approximately 10 miles off the southeastern coast of Florida. The system is considered a "Deep Water Port" (DWP). The Calypso DWP will serve as an offshore delivery point for connection to specially built LNG tankers that will vaporize stored LNG and send it through the buoy system into a pipeline. The Calypso Pipeline would make landfall in Broward County, Florida, and come onshore in Port Everglades, travel approximately 5 miles along an existing industrial corridor, and ultimately connect to the existing FGT pipeline system. Suez plans to have all facilities operational by 2009.

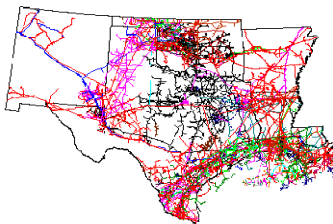
In the Southeast region, several projects are either under construction or proposed to regulatory authorities to bring supplies from the Southwest. Although this is a traditional

pipeline corridor, the expansions relate more to supplies from new unconventional resource development in northeastern Texas (Barnett Shale) and parts of Oklahoma and Arkansas (Fayetteville Shale). For example, Texas Gas Transmission (TGT), which is a 5,900-mile pipeline owned by Boardwalk Pipeline Partners, intends to increase the capacity of its proposed Fayetteville and Greenville laterals to 1.2 Bcf per day from the current capacity of 800 MMcf per day. The lateral projects would provide takeaway capacity for natural gas from the Fayetteville Shale area in north-central Arkansas. The Fayetteville lateral will be a 166-mile, 36-inch pipeline transporting up to 1.1 Bcf per day. The proposed lateral would traverse several counties in Arkansas and interconnect with TGT in Coahoma County, Mississippi. The Greenville lateral will be a 96-mile pipeline with a capacity of 768 MMcf per day, extending from TGT's mainline near Greenville, Mississippi, east to Kosciusko, Mississippi.

Additionally, significant pipeline capacity will be added in the region in 2008 in conjunction with the completion of an underground storage complex under construction in Mississippi. Southern Pines Energy Center, owned by SG Resources Mississippi, L.L.C. and located in Greene County, Mississippi, will have 29 miles of dual 24-inch bidirectional natural gas pipelines and associated facilities that will connect with the FGT system and Transco. Mississippi Hub LLC is also nearing completion of a large new underground storage complex (eventually able to hold 30 Bcf) and related pipelines near Jackson, Mississippi. Related to this development, the owners of the complex are constructing a short large pipeline with a capacity of 1.2 Bcf per day.

Southwest and Gulf of Mexico

In the Southwest, production increases, particularly in the Barnett Shale play of the Fort Worth Basin and other areas of northeast Texas, have created greater demand for takeaway capacity and more pipeline interconnections. In 2007, 21 natural gas pipeline projects were completed in the region, which is home to the most natural gas pipeline mileage in the United States and usually accounts for most of the added capacity during any one year. Nonetheless, capacity additions of 7.0 Bcf per day were the highest yearly increase since at least 1998.



In 2007, approximately 700 miles of pipelines were added to the region's infrastructure at a cost of about \$1.5 billion. Of the 21 pipeline projects constructed in the Southwest, 10 were related to new pipeline builds or expansions in the northeast Texas area or to new flows from the Barnett Shale and accounted for approximately 52 percent (361 miles) of the added pipeline mileage in the region. These infrastructure

improvements in northeast Texas also added 4.0 Bcf per day of capacity, which accounted for 57 percent of the added capacity in the region.

Completed projects in 2007 included a number of enhancements to the interstate grid and new connections between market centers. The most significant projects took place on intrastate systems owned by Centerpoint Energy Gas Transmission Company and Energy Transfer Partners.

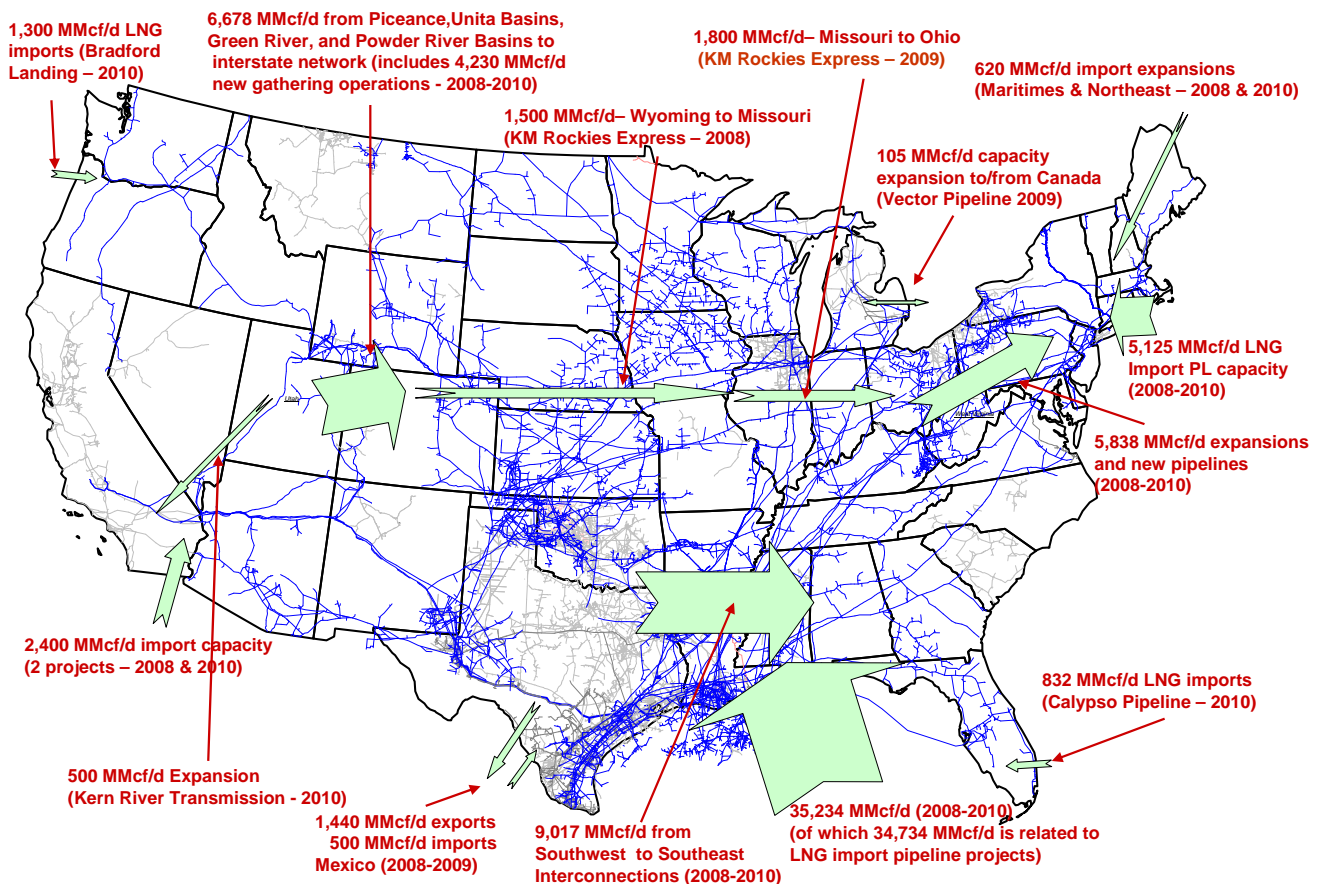
Centerpoint Energy Gas Transmission constructed a new 172-mile pipeline from northeastern Texas to the Perryville Hub in northern Louisiana. In east Texas, it connects to the Carthage Hub, a market center with interconnections of intrastate systems developed by such companies as Atmos Energy, Inc., Crosstex Energy Services, Energy Transfer Partners LP, and Enbridge Pipelines LP. The Perryville Hub connects with nine interstate pipelines and two intrastate pipelines. Phase I of the 42-inch pipeline has a capacity of nearly 425 MMcf per day, but Centerpoint intends to expand its capacity to 1.5 Bcf per day by the end of 2008. The total cost of the project, including the expansion, is expected to be approximately \$550 million.

Energy Transfer installed 135 miles of 42-inch natural gas pipeline in northeast Texas, connecting to the company's existing ET Fuel System in Freestone County, the Bethel Storage Facility, and the company's existing 30-inch Texoma Pipeline in Rusk County. The pipeline provides Energy Transfer with additional takeaway capacity to transport gas from the Barnett Shale and Bossier Sands producing areas. This completed a multiphase project that resulted in a single pipeline providing transportation capacity of 1 Bcf per day out of the Barnett Shale producing region to the Carthage Hub in East Texas.

Dallas-based Crosstex completed construction of its \$20 million project to add 125 MMcf per day of capacity to its North Texas Pipeline, chiefly through additional compression. This project was the final stage of a multiyear system upgrade that also included the \$90 million construction of more than 140 miles of 24-inch pipeline in six North Texas counties. The pipeline begins at a point just north of Fort Worth and gathers and transports natural gas from the Barnett Shale to interconnections with multiple interstate and intrastate pipelines. Currently, the line has the capacity to deliver 375 MMcf per day.

Already in 2008, Gulf South Pipeline Company has completed a new natural gas pipeline with a capacity of 1.7 Bcf per day, also from the Carthage area to the Perryville Hub in northeast Louisiana. Along the route, there are multiple interconnections with other interstate pipelines such as ANR Pipeline Company and Tennessee Gas Pipeline Company. The project also includes an extension of this new natural gas pipeline 86 miles eastward to Jackson, Mississippi, where it will interconnect with the Transcontinental Gas Pipe Line system, allowing its shippers

Figure 5. Major Natural Gas Pipeline Corridor Expansions, 2008-2010



MMcf/d = million cubic feet per day. LNG = liquefied natural gas.

Note: The Energy Information Administration has determined that publication of this figure does not raise security concerns, based on the application of Federal Geographic Data Committee's *Guidelines for Providing Appropriate Access to Geospatial Data in Response to Security Concerns*.

Source: Energy Information Administration, GasTran Gas Transportation Information System, Natural Gas Pipeline Projects Database.

the opportunity to access Northeast and Southeast markets as well. Gulf South's Southeast Expansion to Mississippi includes 112 miles of new 42-inch pipeline with a capacity of 1.2 Bcf per day of capacity. Lastly, Gulf South has proposed the construction of approximately 357 miles of 42-inch pipeline that will originate near Sherman, Texas and proceed to the Perryville, Louisiana area.

In addition to the Gulf South Pipeline projects, Kinder Morgan Energy Partners LP in 2008 plans to build a new 38-mile "Carthage Pipeline" that would provide up to 700 MMcf per day of capacity from the producing area around Carthage, Texas, to northwestern Louisiana. NGPL, the subsidiary of Kinder Morgan, also is planning to expand its Louisiana and Gulf Coast systems (by 200 MMcf per day in 2008) to accommodate expanding production in the region.

Capacity from the offshore Gulf of Mexico expanded in 2007. During the year, three projects involving the installation of about 28 miles of new pipeline were completed, increasing capacity from the offshore by a combined 1.6 Bcf per day. Since 1998, more than 1,500

miles of gathering and offshore-to-onshore transportation pipelines have been built in the Gulf of Mexico, an investment of at least \$2.4 billion that added 14.9 Bcf per day of new pipeline capacity in the region. The largest pipeline addition in the Gulf was the Tennessee Gas Pipeline "Deepwater Link" connection, which required very little in terms of pipeline mileage but nonetheless added 1 Bcf per day of deliverability to the Independence Hub, which is a major new deepwater platform in West Delta Block 68 of the Gulf of Mexico. All production through the new Independence Hub is transported onshore by the Independence Trails Offshore Line, which is owned by Houston-based Enterprise Products Partners LP. It is a 134-mile, 24-inch pipeline that was constructed in 2006.

Capacity additions are scheduled during the next several years in the Southwest region as a result of increased investment in LNG infrastructure (Figure 5). By the close of 2009, four new LNG import facilities are expected to have the capacity to deliver as much as 7.6 Bcf per day of vaporized LNG into the existing natural gas pipeline network in the region, most of it into the interstate network. Unless

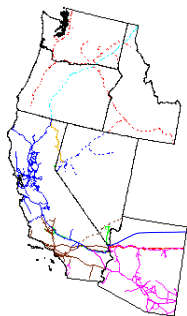
natural gas pipeline capacity in the vicinity of these new LNG facilities is significantly underutilized, interstate natural gas pipelines in the area will have to seek approval of complementary expansion proposals as additional LNG sites near completion status and imports increase.

To date announced projects relating to LNG capacity additions in the region involve a combined 463 miles of new natural gas header (lateral) pipelines. Related to the Sabine Pass LNG terminal is the construction of the \$572-million Creole Trail Pipeline, with Cheniere as the owner and operator. This new 2.7-Bcf-per-day pipeline will connect the Sabine Pass LNG and Creole Trail LNG facilities, both of which are owned by Cheniere, and then connect to multiple interstate pipelines in southern Louisiana. The total length of the proposed line is just 16 miles, but added capacity to the region would total 2.7 Bcf per day. Freeport LNG, in early 2008 completed a 10-mile pipeline associated with its sendout of regasified LNG. With a capacity of 1.75 Bcf per day, the Freeport LNG Pipeline transports natural gas to Stratton Ridge, Texas, where the pipeline interconnects with several intrastate systems.

Another one of these header projects is associated with the Golden Pass LNG facility, to be located near Port Arthur, Texas. The header system consists of a 2.5-Bcf-per-day lateral comprising 33 miles of natural gas pipeline connecting the Golden Pass facility with the Sabine Pipeline and Transcontinental Gas Pipeline interstate systems and the ExxonMobil refinery in nearby Beaumont, Texas. ExxonMobil and Qatargas are partners in the project.

West

Very little capacity was added to West region infrastructure in 2007. Only three natural gas pipeline projects, costing a total of \$39 million and amounting to only 723 MMcf per day of added capacity, were completed in the region during



the year. The largest capacity addition into the region during the year was an upgrade to the North Baja Pipeline in southern California and Mexico. Flows on the North Baja Pipeline, originally constructed in 2002 to transport natural gas from California into Mexico, were reversed. The motivation for the project comes from the construction of the Costa Azul LNG terminal in Baja California, which will provide supplies

to meet incremental demand in Mexico and possibly imports to the United States.

In the first phase of the pipeline project, Sempra Energy, owner of both the Costa Azul LNG terminal and a portion of the North Baja Pipeline, modified North Baja's Ehrenberg Compressor Station and the Ogilby Meter Station to allow for gas flow in the opposite direction (south to north) from their current configuration. Sempra Energy also has plans to

construct a new 42-inch pipeline crossing under the Colorado River, eventually bringing total capacity to more than 1.2 Bcf per day from the current capacity of 500 MMcf per day.

The lack of significant capacity additions for 2007 was the third consecutive year in which there was little activity in the Western region. Although pipeline construction activity in the region will likely continue to be limited in the next few years, several significant projects are underway. A host of other LNG-related projects are also still active in the West region, most of which would involve construction of new pipeline in some form. However, most of the project timelines have slipped considerably to beyond 2010. For example, Crystal Clearwater Port intends to build a deepwater port offshore California to receive LNG, along with a new 12.6-mile, 32-inch pipeline to bring the supplies onshore. While these plans are moving forward, the expected completion date for the Clearwater Port has been pushed back to 2011 from an original target completion year of 2008 and the facility has not yet received government approvals.

Import/Export Pipeline Capacity



For the third consecutive year, no natural gas pipeline import capacity was added between the United States and Canada or Mexico during 2007. After significant capacity increases in the 1990s and early this decade, much of the pipeline grid in North America is well integrated. Large projects between Canada and the United States in the past 10 years included new pipelines such as Alliance Pipeline from the Western Canadian Sedimentary Basin, the Maritimes and Northeast Pipeline from eastern Canada, and expansions of existing pipelines such as Northern Border Pipeline. Trade with Mexico has also increased substantially with the construction of the North Baja Pipeline, as well as extensions of Tennessee Gas Pipeline and Kinder Morgan Pipeline at, respectively, Rio Bravo, Texas, and Roma, Texas.

While construction of pipelines to import natural gas from Canada has virtually halted, one pipeline project was completed in 2007 to increase U.S. exports to Canada. In the Midwest region, the Vector Pipeline Company completed construction of two additional compressor stations to expand the pipeline system's capacity by approximately 245 MMcf per day. Vector, which is a 348-mile pipeline transporting natural gas between Chicago, Illinois, and Ontario, Canada, will have greater flexibility and system reliability for customers seeking natural gas transportation services after the expansion, according to company officials. The additional compression is designed to increase Vector's mainline long-haul gas delivery capacity to the international boundary to 1.2 Bcf per day in the summer and to 1.5 Bcf per

day in the winter.

By the end of 2008, the Maritimes and Northeast Pipeline Company (M&NE) is expected to complete an expansion of its system between New Brunswick, Canada, and northern Massachusetts. The capacity addition of about 420 MMcf per day coincides with the expected 2008 completion of an LNG import facility currently under construction in New Brunswick, Canada (Canaport LNG). M&NE anticipates completing new compressor stations in Woodchopping Ridge, Westbrook, and Eliot, Maine. Total capacity of the line will be about 800 MMcf per day when the expansion is complete, with the vast majority of the capacity held by Repsol YPF, which is expected to be the LNG supplier to the Canaport facility.

Import capacity into the Northeast region also is projected to increase with expansions of the Iroquois Gas Transmission and Empire Gas Pipeline systems, which currently have a combined total of 1.7 Bcf per day of natural gas import capacity through Ontario, Canada. Iroquois will add 100 MMcf per day of capacity as part of its MarketAccess project, and Empire will increase its natural gas pipeline import capacity from 525 MMcf per day to 775 MMcf per day in order to provide needed deliverability to the Millennium Pipeline project. Both projects are scheduled for completion in 2008.

Between 2008 and 2010, the pace of creating additional natural gas pipeline export capacity could once again increase with several crossborder projects, including three expansions and three new crossings. Along the border between the United States and Mexico, two new pipeline/border crossing projects have been proposed, with completion dates of 2008 or later. The Tidelands Oil and Gas Company has proposed two new natural gas pipelines, each with a capacity of 500 MMcf per day. The Progresso and Mission lines, each partly in Texas and partly in Mexico, would link with a planned (Terranova Oriente) pipeline within Mexico. The U.S. portion of this border project would link to a natural gas processing plant and several natural gas pipeline systems located in south Texas.

Observations and Outlook

Pipeline infrastructure expansion activity again appears to be on an upswing. Natural gas pipeline capacity added during 2007 (14.9 Bcf per day) was substantially higher than the additions of prior years going back at least to 1998. Moreover, the current inventory of project proposals indicates potential acceleration in pipeline construction over the next several years.

As much as 103 Bcf per day of pipeline capacity would be added to the national network between 2008 and 2010 if all current proposals were completed as designed and as scheduled, although this is unlikely in part because mainly of

the proposals target similar markets. Overall, about 200 natural gas pipeline projects have been proposed for development between 2008 and 2010 in the United States (as of April 2008). These projects account for more than 10,100 miles of potential new natural gas pipeline. To date, 41 projects have been approved by regulating authorities and have begun, or are permitted to begin, construction, with 4 of the projects scheduled for early 2008 already completed. While 13 projects are still only in the planning, or post-open-season stage, 46 have been submitted to various regulatory authorities for review.

The outlook for new additions to the U.S. pipeline grid appears positive. The development of a number of proposed new LNG import facilities along the coastline of the United States, as well as some in Canada and Mexico, if realized, likely will continue to spark new pipeline proposals. Each of these facilities requires new natural gas pipeline laterals to transport vaporized LNG to interconnections with existing interstate and intrastate natural gas pipelines. A substantial amount of pipeline capacity additions over the next 3 years will also come from the intense development activity in the Rockies and the northeast Texas producing areas.

In the Unita/Piceance Basin of western Colorado/eastern Utah and the Green River and Powder River Basins of Wyoming, for instance, more than 6.9 Bcf per day of new natural gas pipeline capacity has been proposed that would increase natural gas pipeline exit capacity from the region between 2008 and 2010. Additionally, in the northeast Texas area, particularly the Barnett Shale and Bossier Formations of the Fort Worth Basin, increasing production and the discovery of additional proved natural gas reserves have resulted in numerous proposals for development over the next several years. Most of the latter capacity will be directed toward interconnections with the interstate natural gas pipeline network in Louisiana and Mississippi that serves the Midwest, Northeast, and Southeast regional markets.