



U.S. Natural Gas Boom Drives Pipeline Construction And Expansions

by Rita Tubb ■ Managing Editor

North American pipeline construction is at an all time high, accounting for some 1,700 miles of new pipelines installed in 2007. Increased domestic natural gas production appears to have been the driving force behind most of the construction in 2007, a trend that is expected to continue well into 2010, provided the recent U.S. financial crisis does not slow future activity.

Despite what could be challenging times ahead, U.S. companies are currently planning, designing and building 22,558 miles of energy pipelines. Of these, U.S. companies are currently building 4,311 miles of natural gas pipelines and 2,133 miles of crude and products pipelines. The remaining 16,114 miles represent projects in the engineering and design phase.

Supporting expectations for a strong upturn in North American and international pipeline activity is a study by Douglas-Westwood that forecasts \$180 billion in spending on onshore projects worldwide through 2012. The study, titled *The World Onshore Pipeline Report 2008-2012*, estimates a 16% increase in the pipeline mileage installed from 2008 – 2012 compared to the historic five year period 2003-2007. Nearly 75% of the expenditure is expected to be spent in Asia, Eastern Europe, the FSU and North America.

Also maintaining strong support for pipeline expansions well into the future is a recent report from the Energy Information Administration that indicates pipeline expansion activity appears to be on an upswing. The report notes that as much as 103 Bcf/d of pipeline capacity would be added

to the national network between 2008 and 2010 if all current proposals were completed as designed and scheduled.

Following is a discussion of some of the major projects and expansions under construction and planned throughout North America. Additional information is provided in *Underground Construction's* sister publication, *Pipeline News*.

Major Projects

Two of the most highly anticipated projects at this time are proposals to bring North Slope gas to U.S. markets. This year, the long awaited Alaska Gas Pipeline saw some action after the State of Alaska awarded TransCanada Alaska Company, LLC/Foothills Pipelines, Ltd. the right to build the Alaska Gas Pipeline. The proposed route involves an estimated 2,100 miles of 52-inch diameter pipeline. Although at this date, there is no timetable for building the pipeline, TransCanada says it will spend around \$80 million preparing for an open season that is scheduled for early 2010. If constructed, it could transport 4.5 Bcf/d from Alaska's North Slope primarily to Chicago for distribution throughout the U.S.

A second and more recent proposal to transport North Slope gas comes from BP and ConocoPhillips, through their joint venture company, Denali – The Alaska Gas Pipeline LLC, that submitted a letter to the Federal Energy Regulatory Commission seeking permission to use the agency's pre-filing procedures for its natural gas project. With a pre-filing status, Denali could kick

off at least 18 months of engineering and other planning work for the multibillion-dollar pipeline from the North Slope gas fields to Alberta, Canada. The pipeline will be designed to move approximately 4 Bcf/d of natural gas to market, and will be the largest private sector construction project ever built in North America.

As proposed, the project consists of a gas treatment plant on Alaska's North Slope and a large-diameter pipeline that extends 700 miles through Alaska, and then into Canada through the Yukon Territory and British Columbia to Alberta. Should it be required to transport gas from Alberta, the project also will include a large diameter pipeline from Alberta to the Lower 48 states. Total cost estimates range from \$25 billion to \$40 billion.

Certainly another high profile project is the \$4 billion Rockies Express Pipeline being developed by Kinder Morgan Energy Partners, Sempra Pipeline & Storage and ConocoPhillips. So far, more than 1,000 miles of the 1,679 miles Rockies Express Pipeline is in service. The 713-mile REX-West segment which runs from the Cheyenne Hub in Weld County, CO, to Audrain County, MO, became fully operational on May 20, 2008. The initial 327 miles of REX extends from the Meeker Hub in Rio Blanco County, CO to the Wamsutter Hub in Sweetwater County, WY, to the Cheyenne Hub.

Work on the 638-mile, 42-inch diameter Rockies Express East (REX-EAST) segment is well under way and scheduled to begin interim services to the Lebanon Hub in

Warren County, OH by Dec. 31, 2008, and be fully operational in the summer of 2009.

Once completed, the Rockies Express Pipeline will be one of the largest natural gas pipelines built to date in North America.

There is also the 900-mile Rockies Alliance Pipeline proposed by Alliance Pipeline and Questar Overthrust to link the Rocky Mountain Region to Ventura, IA and Chicago, IL trading hubs. The companies say the 1.2 to 1/8 Bcf/d pipeline may begin serve as early as third quarter 2011.

Kinder Morgan Energy Partners, L.P. and Energy Transfer Partners, L.P. have entered into a 50/50 joint venture, Fayetteville Express Pipeline, LLC (FEP), to develop a 187-mile pipeline that will originate in Conway County, AR and terminate in Quitman County, MS. The pipeline will have an initial capacity of 2 Bcf/d. The pipeline is expected to be in service by late 2010 or early 2011.

Elsewhere in North America, work began in the second quarter of 2008 on TransCanada's 2,148-mile Keystone Pipeline to transport crude from Hardisty, Alberta to U.S. Midwest markets at Wood River and Patoka, IL and to Cushing, OK. The Canadian portion of the project involves the conversion of approximately 537 miles of existing Canadian Mainline pipeline facilities from natural gas to crude oil transmission service and new construction of approximately 232 miles of pipeline, pump stations and terminal facilities at Hardisty, Alberta. The U.S. portion calls for new construction of approximately 1,379 miles of pipeline.

Start-up is scheduled in late 2009 and Keystone will be capable of delivering 435,000 bopd to Wood River and Patoka, IL. It will be expanded to 590,000 bopd and extended to Cushing, OK in late 2010.

Expansions

At this time, a number of projects are planned to expand capacity from the Rocky Mountain Region. One of these is a National Fuel Gas Co. proposal to build the \$700 million West-to-East Pipeline that would stretch 324 miles from southeastern Ohio to Corning, NY. This is one of several proposals under consideration to linkup with the Rockies Express Pipeline.

The National Fuel proposal faces competition from other major pipeline projects, including the 375-mile Northeast Express Project proposed by the operators of the Rockies Express pipeline. That extension would run from Clarington, OH to Princeton, NY.

Plans by Regency Energy Partners involve expanding its pipeline system in North Louisiana to bring natural gas from the Haynesville Shale – one of the most active new natural gas plays in the U.S. The \$1.1

billion expansion will provide 1.45 Bcf/d of new capacity to handle expected increases in production from the region. The project will add 204 miles of pipeline, ranging from 24 to 42 inches, and 49,000 horsepower of compression.

International

The latest international projects reflect a higher number of planned pipeline miles than actual construction. Nevertheless, growing world natural gas demand continues to increase planned pipeline mileage. This is reflected in UCON's 2008 international survey figures that indicate 77,314 miles of new and planned pipelines are under construction and planned. Of these, 66,642 miles are projects in the planning phase and 10,672 miles account for pipelines in various stages of construction. The latest figures show an approximate 8,530-mile increase in new and planned pipeline miles over the past year.

Although international pipeline construction has been relatively depressed since 2000, proposed additions in 2009-2010 could see a record number of new miles. Much of the interest in beginning long-planned projects is expected to be driven by energy consumption in developing nations and the strong outlook for the role of LNG in developing gas markets.

Supporting strong growth in international energy consumption is the 2008 BP *Statistical Review of World Energy*. It notes that the Asia-Pacific region accounted for two-thirds of global energy consumption growth in 2007, rising by an above-average 5% although consumption in Japan declined by 0.9%. Chinese growth of 7.7% was the weakest since 2002, though still above the 10-year average (as was China's economic growth). China again accounted for half of global energy consumption growth while India's consumption grew by 6.8%, the third-largest volumetric increment after China and the U.S.

Here is a breakdown of the new and planned pipeline miles outside North America at this time.

- Africa: 8,634
- Asia Pacific: 30,373
- Caribbean/South and Central America: 16,248
- Former Soviet Union and Eastern Europe: 11,782
- Middle East: 5,509
- Western Europe and European Union Countries: 4,768

Additional information on these and other pipelines under construction and planned is provided in *Underground Construction's* sister publication, *Pipeline News*. ■



REX West Construction photo by Butch Stovall