

Pipeline Experts

Expect Major Construction Boom

Pipelines are back in business was the consensus of top industry executives at the second annual Pipeline Opportunities Conference held Feb. 28 at the Hilton Americas-Houston. The event was sponsored by *Pipeline & Gas Journal*, sister magazine of *Underground Construction*. More than 240 people were in attendance.

Pipeline experts participating in the conference provided glowing scenarios for the North American energy infrastructure growth over the next five to 10 years – most of it driven by the natural gas sector.

Supporting this is a recent International Energy Agency (IEA) estimate that indicates \$1.7 trillion will be spent for new energy production, transmission and distribution infrastructure in the U.S. and Canada over the next 30 years.

Speakers said that despite the devastating damage along the Gulf Coast from Hurricanes Katrina and Rita last year which worked to negatively impact materials and repair costs, drive insurance costs to new highs and make it almost impossible to find a contractor, times are still good.

North America

Five industry experts participated in the North American Pipelines Opportunities session. Norman Holmes, Vice President of Business Development at Southern Natural Gas (an El Paso Corporation company), offered a positive perspective on today's business environment. "It's amazing just how busy we are. Everyone on the commercial side of the business is as busy today as they've ever been."

Holmes said these are big projects being implemented to satisfy a supply push as opposed to a demand pull. In defining growth opportunities, he noted that U.S. demand for natural gas, which will be about 2.3% through 2014, was moving eastward and that various sections in the Southeast would witness far greater demand growth, an estimated 4.2%, Figure 1.

As to where the gas would come from to bridge the supply gap, Holmes said LNG imports would play a role, rising from 1.7 Bcf/d in 2004 to 16 Bcf over the next 10 years. While demand is growing, he said traditional gas supply is declining. He noted that while the Gulf of Mexico still has plenty of gas, the outlook 10 years down the road is relatively flat. At the same time, traditional onshore basins are also declining. Where the Gulf really helps out, Holmes said, is with the LNG that will be coming into this region.

In discussing potential projects that could help meet demand through 2014, Holmes said that while supply from the Rockies would increase significantly, there was little indication that the long-planned Alaskan pipeline will be built during this time frame. He does anticipate the Mackenzie pipeline being built and adding about 1.3 Bcf/d.

One of the projects planned to move supply out of the Rockies is El Paso's Continental Connector pipeline project. Scheduled to be in service by 2008, the pipeline is designed to directly connect El Paso's western pipelines, which offer extensive access to growing natural gas supplies in the Rockies and Mid-Continent regions, with El Paso's southern and eastern pipeline, which offer unmatched access to markets from Florida to New England as well as the Midwest. The project would also provide access to production in north and east Texas.

As currently proposed the Continental Connector would involve more than 1,000 miles of new 42-inch diameter pipeline construction to connect El Paso's Colorado Interstate, WIC and Cheyenne Plains Pipelines to points on the company's ANR Pipeline, Tennessee Gas Pipeline and Southern Natural Gas systems.

Still another is the \$4 billion Rockies Express Pipeline planned by Kinder Morgan Energy Partners and Sempra Pipeline & Storage. As proposed, the 1,323-mile pipeline will transport natural gas from the prolific producing basins in Wyoming and Colorado to eastern Ohio. Once completed, it will be one of the largest of its kind ever constructed in North America and will have the capability to transport 1.8 Bcf/d of natural gas. KMP and Sempra have indicated that plans call for the project to be brought on line in segments and be completed by June 2009, Figure 2.

LNG

Noting that LNG is projected to be among the fastest growing segments of the energy industry over the next decade, Holmes said

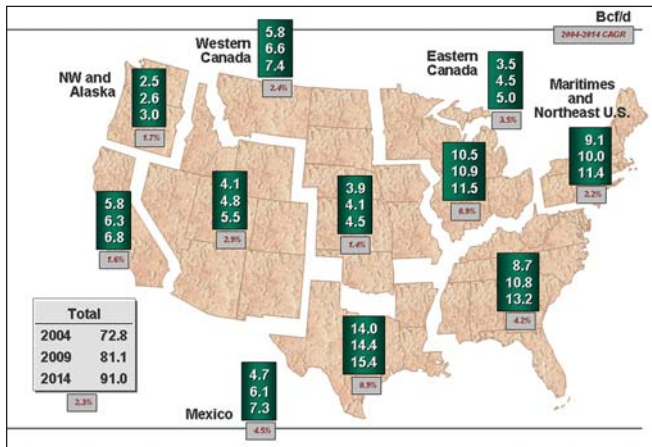


Figure 1: Demand Growth Tilts Eastward

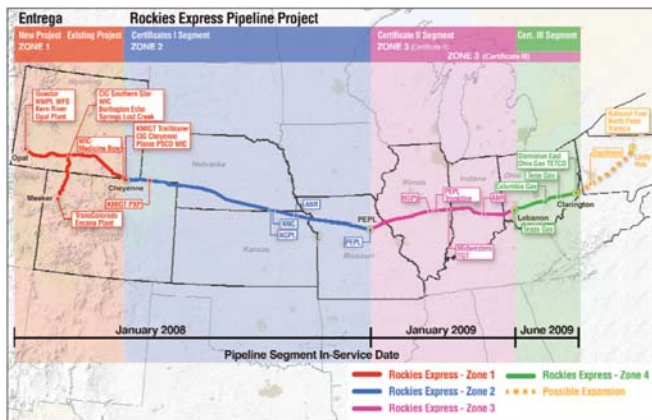


Figure 2

Southern LNG was positioned to meet the demand through its Elba Island LNG terminal.

Elba Island is one of the three LNG terminals on the East Coast and where El Paso completed an expansion in February. "Recently we entered into commercial agreements with Shell and BG to double the size again," Holmes explained. "When this expansion is completed in about 2010, storage capacity at the facility will increase to 15.7 Bcf and sendout capacity to more than 2,000 MMcf/d," Figure 3.

Since Southern Natural Gas' average throughput is less than 2 Bcf/d, new pipeline infrastructure will be needed to get the gas to market. Once completed, the expansion will cost about \$500 million.

As to related pipeline projects, Holmes said there are several: the \$250 million, 165-mile Cypress pipeline in Florida that has an in-service date of May 2007 and the Elba Express. The Cypress system will interconnect with the company's existing pipeline in Chatham County, GA near Port Wentworth, and terminate in Clay County, FL at an interconnection with a Florida Gas Transmission pipeline, which is 50% owned by SNG.

The Elba Express is a 165-mile interstate pipeline with a capacity of 1.1 Bcf/d.

	Reactivation	Phase II	Phase III	Total
Start-up	Dec 2001	1 Qtr. 2006	2010/2012	—
Contract Term	22 yrs.	30 yrs.	long-term	—
Storage Capacity (Bcf)	4.0	3.3	8.4	15.7
Sendout (MMcfd)	675	540	900	2115
Capex (\$MM)		\$155	\$350	\$505

Source: El Paso

Figure 3: Elba's Customers & Capabilities

to increase transportation capacity from the Elba island LNG terminal to markets in Georgia and, through interconnection with other pipelines to the southeastern and eastern U.S. The pipeline, which will consist of about 105 miles of 42-inch diameter line and 86 miles of 36-inch diameter, is expected to be in service by mid-2010.

Holmes said contracts to date just for this one LNG support port total between \$1.2-1.3 billion. "That's the kind of opportunities the industry has all across the country," he said. "And it's going to take those kinds of dollars to get the infrastructure built that the U.S. needs."

Critical energy need

Jeff Rush, General Manager, Gas Transmission Northwest Pipeline & North Baja Systems, North Baja Systems, TransCanada Gas Transmission, Portland, OR, told attendees that the strong construction outlook reflected the critical need for energy in North America.

**Figure 4:
In the Next 10 Years:**

- Power demand will grow by 20%
- Natural Gas demand will grow by 20%
- Traditional North American natural gas supply is expected to shrink by 4%
- North America needs new energy supplies
- New infrastructure will be required to connect those supplies to consumers

Noting that over the next 10 years both power demand and natural gas demand are projected to grow by 20% while traditional North American gas supply is expected to shrink 4%, Rush said, "We're going to have to find more energy in some unique and unusual place and that's going to mean more infrastructure and hopefully more opportunity for all of us," Figure 4.

Discussing future projects in which TransCanada will be involved, Rush cited

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the 800-mile Mackenzie Valley pipeline to transport 1-1.5 Bcf/d of natural gas from the northern Canada starting in 2011, give or take a year.

The TransCanada official was quick to point out the many logistical challenges associated with this project. "Of the 800 miles of pipeline, more than 600 miles of the planned route are in areas where there are no roads," he warned. "Moreover, given the wet terrain, all of the equipment will have to be brought to the right-of-way by barge via the Mackenzie River. A problem this presents is that the Mackenzie River is open only about four months a year, so you have to get the timing just right to barge in the sidebooms, pipe and all the contractor's equipment in the summer (end of June to middle of September), offload it onshore and then wait until freeze up in December to drag it up to the right-of-way and put it in the ground.

"Certainly significant is the fact that the construction season lasts just 90 days each year, meaning contractors have to commit equipment to the project during the preceding summer to conduct work in the following winter construction season. Since the construction season is so short,

all the equipment mobilized to the site remains idle for the remaining nine months between construction seasons."

Rush said TransCanada also expects to participate in the \$10 billion, 1,600-1,700 mile 48-inch diameter Alaska Highway Pipeline to get gas from Alaska's Prudhoe Bay to the Lower 48.

Rush warned: "If you want to be involved in either of these projects, be prepared to build a pipeline in -40 degree weather conditions and in the dark, because that's what you'll be facing throughout the entire construction phase."

As to growth opportunities for TransCanada, Rush cited the proposed 1,870-mile Keystone pipeline that will originate in the oil hub of Hardisty and extend across Saskatchewan and Manitoba and down into North Dakota, South Dakota, Iowa, Missouri and Illinois.

More plans

Randy Barnard, Vice President, Operations & Gas Control for Williams Gas Pipelines, gave an upbeat outlook on his company's plans, including LNG opportunities. One of these, though still preliminary, is the

Pacific Connector pipeline that would link the proposed Jordan Cove LNG terminal to Williams' Northwest Pipeline system near Roseburg, OR and the Tuscarora and PG&E gas transmission systems, both near Malin, OR.

Barnard said the project's location enhances supply options for consumers throughout the Pacific Northwest. As proposed, the pipeline would be capable of delivering 1 Bcf/d to the Pacific Northwest and beyond - including California and northern Nevada - through various interconnects with the pipelines previously mentioned.

Today, virtually all of the supplies serving the Pacific Northwest and northern California originate in the Rocky Mountains or in Canada. Barnard indicated Williams had announced a number of projects, some of which are currently deferred and others that are still in process. He said work was under way on the \$333 million Northwest Capacity Replacement Project in western Washington to transport natural gas to customers in the Pacific Northwest, Figure 5.

The Replacement Project includes approximately 80 miles of 36-inch diameter pipeline to be located within or near the

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current Northwest Pipeline ROW and the installation of additional horsepower at two existing compressor stations and piping modifications at three existing compressor stations. The facilities will replace the transportation capacity of a 26-inch natural gas pipeline that will be taken out of service when the new line becomes operational in November.

Barnard said the Sentinel Expansion, scheduled to become operational in November 2008, is also in response to the LNG impact. It should provide between 200,000-300,000 Dth/d of natural gas from Pleasant Valley, to Cove Point, the Leidy Hub, or any other receipt point downstream of the Leidy Hub. Pleasant Valley also interconnects to points on Transco's system. That's because Dominion, in conjunction with expanding the Cove Point LNG facility, will expand its pipeline capacity across to Leidy so some of

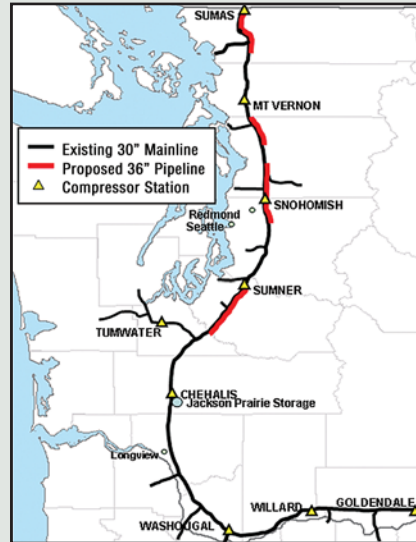


Figure 5: Northwest Capacity Replacement Project.

Description

Designed to replace capacity between Sumas and Washougal, WA
Cost: \$333 MM

Design

360 MDth/d design capacity
79.5 miles of 36" pipeline
10,760 HP at two existing stations

Schedule

Preliminary Determination: May 2005
Final EIS: Aug 2005
Final FERC Certificate: Sep 2005
Start Construction: Fall 2005
In-Service: Nov 2006

Source: Williams Gas Pipeline

CALL FOR TECHNICAL PAPERS

The Underground Construction Technology International Conference & Exhibition (the largest underground infrastructure event of 2007) is now accepting abstracts for the

Trenchless Technical Symposium

Jan. 30 - Feb. 1, 2007

George R. Brown Convention Center, Houston, TX

This is a special, technical track of UCT, separate from the primary program.

Symposium Goals:

- Explore cutting-edge trenchless technical advancements and impacts on the underground construction and rehabilitation industries;
- Present ideas and concepts that could ultimately enhance or redirect research in the field of trenchless construction activities; and
- Provide an interactive forum for various industry researchers to discuss and share their work with industry peers.

Presentations:

- Must be of a technical nature, emphasizing trenchless construction and rehabilitation;
- Unless otherwise requested, presentations will be approximately 20 minutes for presentation, 5 minutes for questions and answers.
- Possible focus areas include (but are not limited to):
 - 1) Enhancing current construction, rehabilitation and remediation equipment/methods;
 - 2) Improving geotechnical information;
 - 3) New concepts for construction and rehab equipment/methods;
 - 4) Industry trends, issues and concerns;
 - 5) Enhanced or improved utility locating;

- 6) Damage prevention, subsurface utility engineering and safety;
- 7) Pipeline inspection and condition assessment;
- 8) Application of GIS and SCADA for the municipal and gas markets;
- 9) Risk assessment;
- 10) Quantifying social costs and impacts;
- 11) Buried asset management; and
- 12) Ongoing research efforts.

Abstract Submission/Review:

- Should be no longer than one page and must be received by June 1, 2006, via E-mail (WordPerfect or Word formats) or conventional mail.
- The abstract must include a title and explain the significance and technical merits of the paper.
- Must include complete name, title, company, address, phone, fax and e-mail of all authors; plus the names of the speaker(s) who will actually be attending and presenting at UCT.
- Accepted abstracts will require submission of a draft for review by Oct. 2, with revised edition submitted for the conference proceedings CD by Dec. 1, 2006.
- Abstracts will be reviewed by an independent technical committee. Presenters of accepted abstracts will be notified in July. Standard, ASCE guidelines should be used in writing the paper.

Send abstracts to:

Robert Carpenter or Traci Read, UCT Trenchless Technical Symposium, 1160 Dairy Ashford Street., Suite 610, Houston, TX 77079-3014
E-mail: rcarpenter@oildom.com; or tread@oildom.com, P:(281) 558-6930; F: (281) 558-7029

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the gas can go into storage. Barnard said that means Williams has to expand in both directions, because of the LNG coming into Cove Point, Figure 6.

Barnard also discussed the significance of the Gulfstream pipeline expansion which went from empty to first-expansion in about three years. Placed into service in May 2002, Gulfstream Natural Gas System is a 691-mile pipeline system with the capacity to deliver 1,095,000 Dth/d to serve Florida's growing energy needs. The pipeline is a joint development between Williams and Duke Energy.

While too numerous to mention here, the Williams' executive also reviewed a number of planned projects.

Offshore

Despite the many problems that Hurricanes Katrina and Rita created for Gulf Coast and offshore pipeline owners like Enbridge last year, comments by Enbridge's David Halphen, Vice President, Commercial Development and Special Projects, were positive for new opportunities. He pointed to the extension of existing systems to connect new deepwater and ultra-deepwater discoveries and new laterals and interconnects for deep shelf finds.

With existing pipelines in place, he said the best prospect for a new corridor pipeline would be from the eastern Gulf area directly across to Florida.

In addition to the many pipeline opportunities, Halphen said a need exists for a hub-class platform that can be utilized for production handling and satellite area developments. These would include both subsea developments tied back to an existing production facility and producer-owned flowlines connecting one platform to another.

Moving to the factors driving onshore opportunities, he cited the 3 Bcf/d increase in northeast and South Texas production that occurred from 1995-2005 and the outlook for an increasing amount of LNG that will be landed along the Gulf Coast from Corpus Christi, TX to Pascagoula, MS. He said that over a dozen projects are in various stages of development along the Gulf, representing more than 20 Bcf/d of natural gas. If only a fraction of these are developed, it could result in a conservative estimate of 5-8 Bcf/d of incremental gas being introduced to this region.

One of the more significant planned projects Halphen mentioned was the Texas-to-Mississippi pipeline. In February, Enbridge kicked off a non-binding open season for the project as its solution to current projected dynamics in the Gulf Coast region. He said that once completed, the pipeline

could receive gas from several in-trastate pipelines in Texas and from several LNG terminals in the area. The timeline for development calls for a binding open season later this year, with a FERC certificate filing in early 2007 and an in-service date in early 2009.

Guy Buckley, Group Vice President, Duke Energy Gas Transmission, described the current business environment as "dynamic" and called on industry, government and the public to help deal with the nation's need for more pipeline infrastructure.

"We need more pipeline infrastructure and we need to have it now," he warned. "If we wait and have a lot of new infrastructure needs hitting us at once it is going to be a problem."

Buckley also called on the industry to attack the LNG problem in the right way by building the required storage and necessary infrastructure. He then reviewed Duke's many growth opportunities, including:

- Starting 350 MDth/d of incremental firm transportation on Gulfstream for Florida Power & Light's new gas-fired power plants;
- Proposing a new major Southeast pipeline providing Gulfstream Natural Gas System customer access to East Texas supply;
- Expanding supply for storage at the Egan storage facility and investigating the development of the proposed Copiah storage field; and
- Gulfstream conducting an open season (through March 1) to gauge market interest in a proposed compression-based mainline expansion of its existing natural gas pipeline system.

Other highlights at the conference included an informative international pipeline outlook by Dr. Michael Economides, Editor, *The Energy Tribune*. Also in the morning session, Jerry Fee, KBR's Onshore Facilities & Pipelines Program Director and Dean Liollo, President, CenterPoint Southern Gas Operations, discussed how recent industry changes translate into opportunities for pipeline companies. Fee warned that the availability of equipment, steel and manpower could be stretched thin in the years ahead, particularly if construction of the Alaskan pipelines moves forward, as expected. The issue of sufficient manpower was on the minds of nearly all

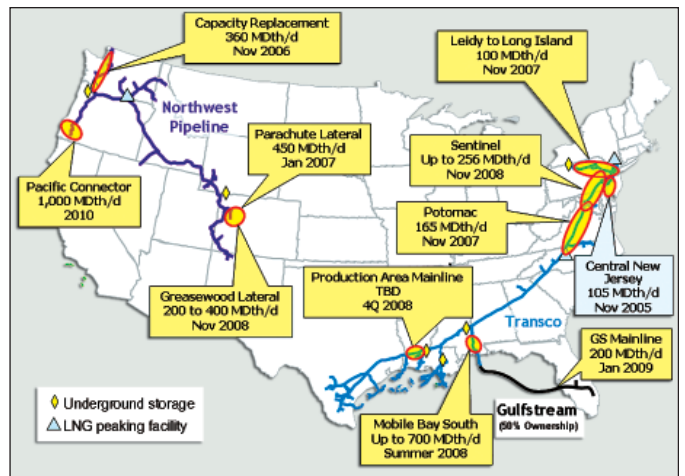


Figure 6: Williams Pipeline Projects

of the speakers involved with new construction projects.

The afternoon was taken up with a session on Litigation Avoidance in the Energy/Pipeline Industry and a session titled Midstream Players: The Sector To Watch that featured speakers from Duke Energy, Enbridge, Louis Dreyfus Energy Services, Falcon Gas Storage, and CrossTex Energy.

Donald F. Santa Jr., president, Interstate Natural Gas Association of America (INGAA) delivered the keynote address at the event that was co-sponsored by INGAA. ■