

Daily Oil Bulletin

Huge Resource Of Low Cost Gas Available Globally

Tue Jul 27 2010
Source: Daily Oil Bulletin

By Lynda Harrison

Backed up by a recent comprehensive report by the Massachusetts Institute of Technology (MIT) that says there is an estimated worldwide remaining resource base of 16,200 tcf of natural gas and its use can lower global greenhouse emissions, Canadian producers are continuing to promote the fuel as a clean source of energy which should see expanded use in existing and new markets.

The comprehensive study of the future of natural gas, conducted by a study group comprised of 30 MIT faculty members, researchers, and graduate students, said the world's remaining gas resource is 150 times the annual consumption of 108 tcf in 2009 and much of it can be developed economically at relatively low gas prices.

One of its conclusions is that natural gas will play a leading role in reducing greenhouse-gas emissions over the next several decades, largely by replacing older, inefficient coal plants with highly efficient combined-cycle gas generation. An 83-page report summarizing the findings was presented to United States lawmakers and senior administration officials.

But America's coal lobby is fighting hard to preserve its key role in supplying power and the American Public Power Association, which represents more than 2,000 electrical utilities, has commissioned its own study which shows there will be a need to invest huge sums in gas pipeline capacity and storage if the country swings away from coal to natural gas.

A recent report by the Canadian Society for Unconventional Gas says Canada's natural-gas-in-place resource is almost 4,000 tcf -- the marketable portion being between 700 and 1,300 tcf.

"Globally, there are abundant supplies of natural gas, much of which can be developed at relatively low cost," wrote the MIT report's authors. The current mean projection of remaining recoverable resource is 16,200 tcf, 150 times current annual global gas consumption, with low and high projections of 12,400 tcf and 20,800 tcf, respectively. Of the mean projection, approximately 9,000 tcf could be economically developed with a gas price at or below \$4 (U.S.) per mmBtu at the export point, the study says.

"We recognize this and have recognized for quite some time that with the advent of technologies and shale gas that have opened up vast new supplies, natural gas is abundant and affordable in a way that we really haven't seen in our lifetimes and as a result there's plenty of new opportunities to use natural

gas," said Alan Boras, Encana Corporation spokesperson.

"Traditionally the market usually grows at a slow pace, one to two per cent, typically, historically over time," said Boras. "But the reality is that we have plenty of gas so there is great opportunity for expanding its use at a very cost competitive price with other fuels, namely coal for power generation and gasoline for transportation."

The two-year study, managed by the MIT Energy Initiative (MITEI), examined the scale of U.S. natural gas reserves and the potential of this fuel to reduce greenhouse-gas emissions. Based on the work of the multidisciplinary team, with advice from a board of 16 leaders from industry, government and environmental groups, the report examines the future of natural gas through 2050 from the perspectives of technology, economics, politics, national security and the environment.

Peter Tertzakian, chief energy economist and managing director at ARC Financial, was on the study's advisory committee.

Its overarching conclusions are that:

- * Abundant global natural gas resources imply greatly expanded natural gas use, with especially large growth in electricity generation.
- * Natural gas will assume an increasing share of the U.S. energy mix over the next several decades, with the large unconventional resource playing a key role.
- * The share of natural gas in the energy mix is likely to be even larger in the near to intermediate term in response to carbon dioxide emissions constraints. In the longer term, however, very stringent emissions constraints would limit the role of all fossil fuels, including natural gas, unless capture and sequestration are competitive with other very low-carbon alternatives.
- * The character of the global gas market could change dramatically over the time horizon of this study.

The global gas supply base is relatively immature; outside North America only 11% of the estimated ultimate recovery of conventional resources has been produced to date, it said.

Recognizing the huge potential of natural gas, some of the world's largest multi-national oil companies have moved aggressively recently to build their gas assets, partly because they are locked out of many countries with oil potential.

The MIT study also noted the substantially lower carbon footprint of natural gas relative to other fossil fuels, combined with the development of North American unconventional natural gas supply and the high cost and slow pace of lower carbon alternatives, has focused attention on natural gas as a "bridge" to a low-carbon future.

"Much has been said about natural gas as a bridge to a low-carbon future, with little underlying analysis to back up this contention. The analysis in this study provides the confirmation - natural gas truly is a bridge to a low-carbon future," said Ernest J. Moniz, MITEI director.

The Canadian Association of Petroleum Producers has joined the newly formed Canadian Natural Gas Initiative (CNGI), a nation-wide advocacy and communications initiative supported by the natural gas value chain in Canada, to: develop objective, fact-based educational materials on natural gas; raise understanding among decision makers of the role gas should play in achieving Canada's energy, environmental, and economic objectives; and demonstrate that gas is a smart foundation for the country's evolving energy mix and encourage supportive policy.

It's also sponsored by the Canadian Gas Association (CGA) and the Canadian Energy Pipeline Association (CEPA), with support from the Canadian Society for Unconventional Gas (CSUG) and the Canadian Natural Gas Vehicle Alliance (CNGVA).

Canada's producers believe it is critically important to establish natural gas as a key part of North America's future energy system, David Collyer, CAPP's president, has said. Not a bridge fuel, rather it is a foundational element in a lower-carbon energy future, said Collyer.

CAPP would like to broaden the use of natural gas in Canada, and in a North American context. "Enabling natural gas as a smart energy choice for Canadians will require greater awareness of its positive attributes and changes in government policy," he told an April meeting of the Calgary Chamber of Commerce. "The same policy elements that are included in the Alberta Competitiveness Review also underpin the natural gas initiative - regulatory reform, fiscal competitiveness and technology and innovation."

Canada's federal government - led by Natural Resources Canada - is partnering with a broad range of stakeholders to develop a roadmap for natural gas use in transportation in Canada. The aim is to identify and address barriers to market development and ensure end user needs are met in regards to natural gas as a transportation fuel.

Encana has also established a distinct group, called the natural gas economy, and appointed a senior executive to it, Eric Marsh, to promote the use of natural gas. He's been talking to public policy

makers, government officials: state, federal, provincial officials, about advancing the use of natural gas.

Boras said Marsh has been working at the federal level with committees that are looking at things like establishing new driving corridors in Canada - one between Quebec City and Windsor (Highway 401) and one between Edmonton, south to Calgary and west to Vancouver, to build the infrastructure to enable refueling of natural gas vehicles.

"You don't have to build a whole bunch of new stations, you just add a pump to an existing land base where there are stations. It's putting together the last couple of links in a system that is largely built," he said.

Encana has purchased 25 natural-gas powered vehicles to work in the field, has already converted some vehicles to run on natural gas and is going through a process of converting more in Canada and the U.S. It plans to have 200 to 300 such vehicles in the next several years. The company is also installing fueling stations in the field where these vehicles can fuel up.

Enbridge Inc. currently operates Canada's largest fleet of natural gas vehicles with more than 600 light duty vehicles.

Because it is less expensive than gasoline, natural gas is used as a transportation fuel mainly by high-use vehicles, such as taxis, buses and fleet cars. According to Natural Resources Canada, there are about 20,000 natural gas vehicles in Canada. Return-to-base urban and road freight transportation is the area with the most potential for natural gas use, it said.

According to the Canadian Natural Gas Association, on a well-to-wheels or total life cycle basis, natural gas vehicles typically have 20-25% lower GHG emissions than gasoline- or diesel-powered vehicles.

A 2009 natural gas commodity report by the Canadian Energy Research Institute says, despite being a technology leader in the natural gas vehicle sector, Canada lags other jurisdictions when it comes to market adoption of heavy natural gas vehicles. Transit use of natural gas in Canada is approximately two per cent, it said, compared with 20% in the U.S. Currently, there are no natural gas refuse trucks or highway tractor trailers in Canada, said the report.

Meanwhile, 25 to 30 U.S. cities have natural gas-powered garbage trucks, and that model works very well, said Alicia Milner, president of the Canadian Natural Gas Vehicle Alliance, a national not-for-profit trade association that advocates for the sustainable growth of natural gas vehicles, refuelling infrastructure and renewable gaseous fuels.

Ottawa-based CNGVA is developing a deployment roadmap to create a new market for natural gas. It says capturing three per cent of the heavy truck market (21,000 trucks) would increase gas demand by 55 bcf.

The Canadian Energy Research Institute has said a perceived shortage of long-term natural gas supply has constrained public policy thinking in this area in the past. However, the increasingly abundant natural gas supply outlook, attributable to both shale gas developments, as well as the potential for increased LNG imports, is now changing the entire North American supply picture, said a CERI report. Therefore heavy vehicles' use of gas has the potential to reduce emissions from transportation sources in Canada, it said.

According to CERI, assuming 20% of heavy vehicles in Canada operated on natural gas, the total gas demand for this sector would be 109 bcf (equivalent to 3.2 billion diesel litres) per year, representing less than five per cent of current Canadian domestic natural gas consumption.

The MIT study said transportation fuel currently accounts for only 0.15% of total U.S. demand for natural gas, however this sector represents an area of possible growth in gas consumption.

Encana and Talisman Energy Inc. are members of the American Natural Gas Association (ANGA), a Washington, D.C.-based education organization formed by North American leading independent natural gas exploration and production companies dedicated to increasing appreciation for the benefits of North American natural gas. Together, ANGA members produce more than 40% of the total U.S. natural gas supply.

According to the MIT study, the only factory-produced natural gas vehicle, the Honda GX, has an incremental cost relative to a gasoline vehicle of around \$5,500 (U.S.) in comparison to around \$3,700 (U.S.) for the European VW Passat TSI Eco-fuel.

Boras noted Federal Environment Minister Jim Prentice has made an announcement about the move towards greater use of natural gas at power generation facilities and recent policy announcements about the lifespan of coal-fired generation facilities.

"Those things will take time but we are developing for, working to and advocate for those measures," said Boras.

Encana also has gas marketers who work directly with the company's exploration and production teams providing commercial, operational and analytical marketing expertise to large industrial users, local distribution companies, wholesale customers and commodity purchasers.

At Encana's annual meeting in April the company's board chairman, David O'Brien, said he expects there will be a dramatic increase in the use of natural gas both in power generation and transportation. Its president and chief executive officer, Randy Eresman, said Encana has a huge resource base in many of North America's key resource plays and it plans to double gas production within five years.

A Husky Energy Inc. spokesperson said Husky is focused on monetizing the gas it produces and is not at the forefront of natural gas promotion. Encana "has been carrying the flag the highest in that area," said Adam Sparkes.

The "shale gas revolution" has brought a huge amount of new commercial gas to the market across North America and probably ultimately around the world, creating an opportunity for producers but weak demand and high supplies have created a price level that has been challenging, said Tom Huffaker, CAPP's vice-president for policy and environment.

Earlier this month, the Washington-based American Public Power Association, released a study showing that \$348 billion in new pipeline capacity would have to be invested to meet the additional gas demand should all of the U.S. coal-fired power plants be replaced with gas. "The magnitude of this investment is inconsistent with the much touted idea of natural gas as a temporary bridge fuel," the association said.

On top of the pipeline investment, the study said gas storage capacity would need to be increased by 1.4 tcf at a cost close to \$12.5 billion.

While conventional wisdom says you can retrofit existing coal fired units to burn natural gas, virtually all conversions achieved to date have been replacement units, not retrofits, the association noted, adding that the cost to build new gas-fired units to replace coal units would be in the range of \$330 billion.

And if all coal units switched to gas, overall demand for gas would surge to 36 tcf per year from 23 tcf a year.

© 2010 Daily Oil Bulletin