

The Elusive Promise of Cheap Energy

By **Peter Mantius**, on October 29th, 2012

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Billboard in Tioga County, New York; "Drill a Gas Well. Bring a Soldier Home."

Five years ago, the United States did not produce enough natural gas to meet its own needs and was resigned to its status as a long-term gas importer.

Now that has all changed, thanks to the widespread use of high-volume hydrofracking to extract gas from shale formations. Today domestic gas supplies are so high and prices so low that energy companies are scrambling for clearance to export it to countries that will pay three or four times as much for it.

But granting export permits to all who seek them could be a dangerous mistake. The U.S. Department of Energy, among others, suspects that rampant exporting would trigger domestic price spikes that would hurt consumers, electric utilities and manufacturers. Over time, more expensive gas would undercut the competitiveness of U.S. manufacturing worldwide.

So the DOE is in a tight spot as it considers how to handle more than a dozen recent applications for permits to export liquefied natural gas, or LNG.

Most applicants seek two types of DOE permits – one that is routinely granted and one that is hard to get. The routine permit allows exports to countries with Free Trade Agreements with the U.S., such as Canada and Mexico. But the true prize is the permit to export to non-FTA countries, like Japan, Korea, China, India and most of Europe, where gas demand and prices are soaring.

U.S. gas has recently rebounded to about \$3.50 per million BTU, but it still lags far behind Europe at roughly \$12 and Japan at more than \$17.

The DOE has granted only one non-FTA export permit – to Cheniere Energy for its Sabine Pass LNG import terminal in Louisiana. All other non-FTA applications are on hold pending release of a DOE study on the economic impacts of LNG exports.

If the agency concludes that exports must be limited, it will be forced to choose winners and losers from the export applicant pool, which includes energy giants like ConocoPhillips and Dominion Resources. Expect fierce lobbying, if not questioning about why Cheniere, a much smaller company, was granted such an enormous head start.

Sen. Ron Wyden, a Democrat from Oregon who is in line to become the chairman of the Senate Energy Committee if his party maintains its Senate majority on election day, wonders what criteria the agency plans to use to make those tough calls.



"I request an all-inclusive description of the factors that DOE will consider in determining a supplier's authority to export LNG, and what factors DOE will consider in revoking such authority," Wyden said in an Oct. 23 letter to DOE



DOE Secretary Steven Chu

Secretary Steven Chu.

The problem is that energy company applicants seek clearance to export a total of 48 billion cubic feet of gas a day – well over half of all U.S. gas consumption. A preliminary study by the DOE found the export of 12 bcf per day would raise prices as much as 9 percent. Cheniere is authorized to export up to 2.2 bcf per day from Sabine Pass.

For months, the agency has been working to update its assessment of the impact of LNG exports. But the presidential campaign has bought Secretary Chu some time. The report was first scheduled for release in the spring, then August, now after the election.

Both President Barack Obama and Republican challenger Mitt Romney have shied away from the LNG issue. Romney did criticize Obama in July for delaying decisions on the export applications, but then he declined to say how he would decide the cases. Both have since all but dropped the subject.

Meanwhile, members of Congress from regions that have seen active fracking of shale formations have not been so reticent. “We urge you to move forward with the approval process for companies seeking to break into the global marketplace for (LNG),” 21 House members from districts that overlie the Marcellus and Utica shale formations wrote Chu in June.

While the drilling boom revived many local economies, all the furious activity caused a gas glut that drove the market price of gas to decade lows, causing drillers to shut down their rigs. “If demand does not increase, the economic benefits we are beginning to see will be gone,” the House members wrote. “One answer to the growing supply and demand imbalance is to allow American producers to capture a share of a growing global LNG market.”

Those arguments were echoed in August in a similar letter to Chu from 44 members of Congress from Texas, Oklahoma, Louisiana and Arkansas.

In September, 16 more House members from western districts added their voices, writing: “Creating more opportunities to sell natural gas into global markets and access overseas customers could help the goals of increasing natural gas use and smooth out historical boom-bust cycles.”

That argument stands in ironic contrast with the drilling industry’s often-cited goal of using domestically produced gas to help the U.S. wean itself from oil imports from the war-torn Middle East. Pro-drilling landowners in New York still use the rallying cry: “Drill a Gas Well. Bring a Soldier Home.”

By diminishing domestic gas supplies, LNG exports would not only cloud the U.S. energy security picture, they would also undermine economic benefits electric utilities and manufacturers are already reaping from cheap gas. Southern Co., the giant Atlanta-based electric utility now uses cheap natural gas to power nearly half its generators, up from just over a quarter a year ago. Its older, dirtier coal plants are less competitive.

For Dow Chemical, low gas prices have spurred plans for \$4 billion in expansions in Texas and Louisiana. But Andrew Liveris, Dow’s CEO, warned that excessive LNG exports – more than 15 percent of U.S. consumption – could “kill” those growth plans, Business Week reported in April.

Of all the voices DOE Secretary Chu considers before deciding an LNG export policy, none are likely to count more than his own advisory committee on natural gas.

Two high-profile members of that panel, chairman John M. Deutch and Daniel Yergin, recently wrote opinion pieces in The Wall Street Journal. Both are decidedly bullish on the economic benefits of fracking for shale gas, and both see plenty of room for LNG exports.

Yergin, the Pulitzer Prize-winning author of “The Prize” about the history of oil, says the enormous supply of gas from fracking shale will provide a foundation for an American “manufacturing renaissance.” Cheap gas will help U.S. chemical manufacturers gain an edge against competitors worldwide, he said.

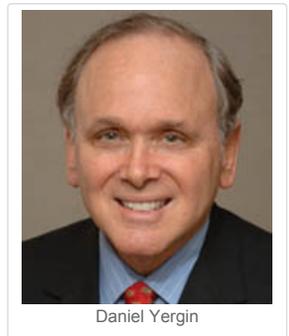
And allowing LNG exports becomes almost an obligation, Yergin suggested in his Oct. 22 column, writing, “How can America, having asked Japan to reduce Iranian oil imports, turn around and prohibit the export of surplus natural gas to this key ally?”

Deutch, an emeritus professor at MIT who served one year as head of the CIA during the Clinton Administration, had offered his own take on LNG exports in The Journal in August. As a board member of Cheniere – the only company awarded a coveted permit to export LNG to non-FTA countries – he is particularly qualified to comment.



“The U.S. government is likely to grant several export licenses for LNG, but this promises to be politically controversial,” Deutch wrote. “If the U.S. takes a protectionist position, the North American gas market’s integration assures that LNG will be exported from Canada and Mexico.”

Apache Corp. and Royal Dutch Shell have already announced plans to ship LNG to Asia from the town of Kitimat on Canada’s Pacific Coast. On Canada’s Atlantic Coast, Pieridae Energy Canada plans exports to Europe and India from a site north of Halifax, Nova Scotia.



Daniel Yergin



John M. Deutch

Pieridae hopes to sign up European customers by next spring and complete its \$5 billion project by 2018. It would draw gas from Canadian sources onshore and offshore, as well as American shale formations.

“Currently every major pipeline is looking for ways to bring Marcellus gas to Canada,” Alfred Sorensen, president of Pieridae, told DCBureau.org. “Once the gas crosses the border it is no longer ‘U.S. gas’ and is not subject to the U.S. restrictions currently in place.”

But the Canadian projects still have to compete with Cheniere’s Sabine Pass, which can claim easier access to cheap gas, signed contracts with importers and the earliest construction completion date: 2015.

In fact, Cheniere’s ability to sign foreign customers to long-term supply contracts at attractive prices has made it much tougher for Apache to find customers of its own, particularly as Shell leverages its worldwide reach to land export contracts. So the Apache plant may never get off the ground.

Meanwhile, ExxonMobil, BP and ConocoPhillips plan a \$50 billion gas pipeline from the North Slope of Alaska to the Kenai Peninsula near Anchorage, site of the only operational LNG export facility in the U.S. The plant at Nikiski has exported to Japan since 1969, but it is much smaller than those on the drawing boards for the Gulf of Mexico, Oregon and Maryland.

Huge gas reserves from the North Slope were once destined for the Lower 48 states, but the shale gas boom has killed that option. Using Nikiski to export Alaskan gas as LNG is seen as the logical alternative.

Japan is the most obvious customer. After idling nuclear production in the wake of the Fukushima disaster, Japan became the world’s leading LNG importer in 2011, taking 33 percent of world LNG shipments. Europe followed with 27 percent, while South Korea took in 15 percent.

At least 25 countries accepted LNG shipments last year, and 19 countries exported it. The U.S. has a tiny share of world exports, all from Nikiski. Qatar, Malaysia and Indonesia are the world’s leading LNG exporters.

At the end of last year, 360 ships, many built in South Korea, transported LNG across the world’s oceans.

The process of converting natural gas into a liquid suitable for export starts with shipping it from the wellhead by pipeline to a liquefaction facility at an export terminal. Gas from the pipeline is mostly methane. Other trace gases are filtered out at the export terminal before the methane is cooled to 260 degrees below zero, Fahrenheit, the point at which it turns liquid. The cooling process compresses its volume some 600 times.

Each liquefaction/export facility costs billions of dollars and takes years to construct. Sabine Pass, for example, will not be ready for business until 2015, and Cheniere expects the project to cost \$5.6 billion.

A company that launches such a construction project must gamble that U.S. gas prices will remain lower than the world market after the plant comes on line three to five years later.

But the U.S. price has fluctuated dramatically over the past decade, especially during the recent boom-and-bust cycle triggered by high-volume fracking of shale. During 2008 and 2009, drillers raced to exploit new shale ventures. Gas supply surged ahead of demand and market prices sank to \$1.90 per million BTU in April, the lowest level in a decade and well below the cost of production.

That brutal squeeze led drillers to slash production, close down rigs, sell assets and aggressively promote LNG exports. In recent months, supply has leveled off, demand has risen and prices have jumped to \$3.60 per million BTU – still low by historical standards.

Like Yergin and Deutch, both Obama and Romney say they are convinced that U.S. gas reserves are so substantial that they will help transform the national economy and provide hundreds of thousands of new jobs over many years. Yergin’s firm IHS Cambridge Energy Research Associates figures the shale boom has generated 1.7 million new jobs and may add another 1.3 million by 2020.

But there are those who doubt.

“Opposition to LNG exports comes from a variety of sources, ranging from those concerned about the impact on domestic prices to those who simply do not like shale gas,” Yergin wrote in his recent Wall Street Journal opinion piece.

The phrase “those who simply do not like shale gas” was Yergin’s pejorative way of dismissing those who doubt the widely touted estimates of economically recoverable shale oil and gas reserves or who doubt that state and federal regulators are capable of protecting the nation’s water and air from the environmental consequences of fracking.

Robert Howarth, a professor of ecology and environmental biology at Cornell University, is one of those doubters. “The best available



Alfred Sorensen, president of Pieridae Energy Canada

estimates suggest that the total economically available reserves of natural gas in the U.S. – conventional and unconventional gas, including shale – is at most a 24-year supply for the country at current rates of consumption,” Howarth said. “If we become major exporters, the supply, of course, does not last as long.”

It could be even less if fleets of American trucks or buses are converted to natural gas.

President Obama’s stump speech line that the U.S. has enough buried natural gas to last the nation 100 years regularly triggers “fact-check” responses that suggest Howarth is much closer.



Robert Howarth

And Arthur E. Berman, among others, has raised basic questions about the economic fundamentals of fracking shale. The petroleum engineering consultant has noted that gas well production reports show fracked wells deplete at a much faster rate than conventional gas wells. If his conclusions prove to be accurate, the amount of economically recoverable gas nationally may be dramatically less than optimists like Yergin presume.

Meanwhile, environmental groups argue that existing state and federal regulations do not do nearly enough to protect the nation’s water and air from the fracking process. But raising regulatory standards would slow shale development. The Sierra Club, which claims 600,000 members, has filed challenges with the DOE and the Federal Energy Regulatory Commission on the Sabine Pass project, alleging that the scope of federal review of environmental and economic impacts has been too narrow.

“Export of LNG will induce additional shale gas extraction, increase domestic gas prices, induce additional coal consumption for electricity generation, and increase greenhouse gas emissions and global warming,” the Sierra Club said in a filing with the DOE in January.

Deutch has argued that the environmental impact of fracking is “manageable” with strong, independent regulation. But he has acknowledged that state and federal regulators do not cooperate well. “Comprehensive air and water quality regulations are not set,” he wrote.

And the fracking advisory panel Deutch chairs for DOE Secretary Chu does not take environmental threats lightly.

“If action is not taken to reduce the environmental impact accompanying the very considerable expansion of shale gas production expected across the country – perhaps as many as 100,000 wells over the next several decades – there is a real risk of serious environmental consequences causing a loss of public confidence that could delay or stop this activity,” the panel concluded last November.

The report listed specific recommendations for dealing with fracking wastewater and a host of other issues, and it urged federal and state regulators to team with non-profit groups that promote rigorous energy regulation. But it has not called for a shift to comprehensive federal regulation of gas drilling.

“The pollution from unconventional oil and gas development moves across state lines in surface waters, in the air, and in gas pipelines (in the case of radon),” Howarth said in testimony to a House subcommittee in May. “This interstate pollution clearly calls for federal oversight of environmental and public health regulation.”

The gas drilling industry enjoys exemptions from federal laws protecting water and air, and it has battled fiercely to keep them. Drillers are not required to list all the chemicals they mix with water and sand in fracking jobs. Chu’s advisory committee does not recommend upsetting the status quo on those issues or shifting the lead role in industry regulation from the states to the federal government.

Howarth and a growing list of independent scientists warn against defending the regulatory status quo. “Most states lack the science capacity to adequately develop and enforce regulations for unconventional oil and gas,” said Howarth, the lead author of a peer-reviewed study that found that the production and use of natural gas generated as many or more greenhouse gases that contribute to climate change as the production and use of coal.

Although the Howarth study received worldwide attention, it was omitted from New York State’s 1,000-plus-page generic environmental impact statement on high-volume fracking. The state regulator responsible for preparing that statement has signed a petition denying that climate change poses any serious threat.

New York governors have been slow to open up the state’s Marcellus shale formation to fracking in part because of mounting public concern that state regulators are not up to the task of tracking toxic wastewater or evaluating health risks from extensive drilling. Also, both opponents and supporters of drilling agree that the state environmental agency is severely understaffed. Yet New York’s Republican-controlled state Senate has blocked virtually all legislation on gas drilling that does not have the support of the energy industry.



Peter Mantius

Peter Mantius is a reporter in New York. He covered business, law and politics at *The Atlanta Constitution* from 1983-2000. He has also served as the editor of business weeklies in Hartford, CT, and Long Island. He is the author of *Shell Game* (St. Martin’s Press 1995), a nonfiction book on Saddam Hussein’s secret use of a bank office in Atlanta to finance billions of dollars in arms purchases from

Western countries before the 1991 Persian Gulf War.

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