From:	Darby, Joan
To:	LNGStudy
Subject:	2012 LNG Export Study
Date:	Thursday, January 24, 2013 3:20:42 PM
Attachments:	2013-01-24 Jordan Cove Energy Project LP Comments on LNG Export Study.pdf

Please find attached the comments of Jordan Cove Energy Project, L.P. on the LNG Export Study.

Joan M. Darby
Counsel
Dickstein Shapiro LLP
1825 Eye Street NW | Washington, DC 20006
Tel (202) 420-2745| Fax (202) 379-9232
darbyj@dicksteinshapiro.com

DICKSTEINSHAPIRO LLP

1825 Eye Street NW | Washington, DC 20006-5403
TEL (202) 420-2200 | FAX (202) 420-2201 | dicksteinshapiro.com

January 24, 2013

By Email
LNGStudy@hq.doe.gov

Mr. John Anderson
U.S. Department of Energy (FE-34)
Office of Natural Gas Regulatory Activities
Office of Fossil Energy
Forrestal Building, Room 3E-042
1000 Independence Avenue SW
Washington, D.C. 20585

john.anderson@hq.doe.gov

Mr. Edward Myers
U.S. Department of Energy
Office of the Assistant General Counsel
for Electricity and Fossil Energy
Forrestal Building, Room 6B-256
1000 Independence Avenue SW
Washington, D.C. 20585

edward.myers@hq.doe.gov

Re: 2012 LNG Export Study
and
Jordan Cove Energy Project, L.P., FE Docket No. 12-32-LNG

Dear Mr. Anderson and Mr. Myers:

The U.S. Department of Energy (DOE) issued a "Notice of availability of 2012 LNG Export Study and request for comments" (Notice) that was published in the Federal Register on December 11, 2012 (77 Fed. Reg. 73627). The Notice invited "comments regarding the LNG Export Study that will help to inform DOE in its public interest determinations of the authorizations sought in the 15 pending applications" (77 Fed. Reg. at 73629), one of which is the Application of Jordan Cove Energy Project, L.P. (Jordan Cove) pending in the above-referenced docket. In response to DOE's invitation, Jordan Cove submits the following: (1) the overall evaluation of the LNG Export Study by Navigant Consulting, Inc. (Navigant), which is set forth in the January 22, 2012 letter from Navigant to Jordan Cove attached to this letter as an appendix; and (2) comments pertinent to the LNG Export Study as it applies specifically to Jordan Cove's Application, which are also based on an analysis by Navigant and which are set forth immediately below.

Both reports comprising the LNG Export Study – the January 2012 Energy Information Administration analysis focuses on impacts on domestic energy markets and the December 2012 NERA Economic Consulting analysis focused on impacts on the U.S. economy – are devoid of regional assessments. Because the LNG Export Study analyzes LNG exports only from the U.S. Gulf Coast, it tends to overestimate price impacts of exporting LNG and it fails to identify, and consequently overlooks, economic contributions that would be made by LNG exports from an export project like Jordan Cove situated on the U.S. West Coast.

Jordan Cove will export LNG sourced from more abundant and less costly regional gas supplies that are not accessible to Gulf Coast projects, namely resources from Western Canada and the U.S. Rockies. The lower average delivered supply cost of the natural gas supplies available to Jordan Cove means that, had LNG exports from Jordan Cove's West Coast terminal been included in the LNG Export Study, the forecasted price impacts would likely have been mitigated. Stated differently, the underlying assumption of only Gulf-sourced LNG exports likely resulted in price impacts being overestimated in the LNG Export Study

As a U.S. West Coast terminal, Jordan Cove will also have the advantage of shorter distances and less sailing time (without a Panama Canal transit) to the high-demand Asian markets for LNG and consequently the advantage of significantly lower shipping costs. Indeed, the NERA analysis estimated shipping costs to those markets from Canadian West Coast LNG terminals at $1.23/MMBtu, which is $1.31 less than (and less than half of) its estimate of $2.54/MMBtu for shipping costs to Asia from the U.S. Gulf Coast. The NERA analysis found that Canadian exports to Asia would nevertheless have an overall higher cost due to liquefaction capital costs. NERA estimated the loaded liquefaction cost element for Canadian projects at $3.88/MMBtu and for U.S. Gulf Coast projects at $2.14/MMBtu. While U.S. West Coast "greenfield" projects would have higher capital costs than U.S. Gulf Coast "brownfield" projects, their costs would not approach those of projects located in remote and rugged Kitimat, British Columbia. Assuming that Jordan Cove's loaded liquefaction cost element would be mid-way between the Canadian and U.S. Gulf Coast figures estimated by NERA, it would be $3.01/MMBtu or $0.87 more than the Gulf Coast figure. Jordan Cove's shipping cost advantage of $1.31/MMBtu more than makes up for its higher liquefaction costs, leaving Jordan Cove with an overall cost advantage of $0.44/MMBtu over U.S. Gulf Coast projects. Jordan Cove's cost advantage not only means that Asian buyers would benefit from a lower delivered cost of LNG, but also that the U.S. would reap greater economic benefits.

Because the LNG Export Study does not account for U.S. West Coast projects being able to export LNG at a lower overall delivered cost, it underestimates economic benefits in at least two ways. Since NERA's modeling is based only on Gulf-sourced LNG exports that would have higher delivered costs, it potentially understates the equilibrium export volumes, and therefore the associated economic benefits. In addition to such a volume-driven increase in economic benefits, the inclusion of U.S. West Coast projects like Jordan Cove in the LNG Export Study would have produced an increase in economic benefits due to the composition of the delivered cost of LNG. Simply stated, the relative portion of the price paid for a U.S. LNG export flowing to the U.S. terminal, as opposed to the portion flowing to the non-U.S. shipping company, would be greater if the export is from the U.S. West Coast instead of from the U.S. Gulf Coast. Thus, the substitution of Jordan Cove's higher liquefaction capital costs (which lead to economic benefits) for a U.S. Gulf Coast project's higher shipping costs (which do not lead to economic benefits) results in more economic benefits being kept in the U.S.

In sum, DOE should, as the LNG Export Study does not, recognize the economic contributions that would be unique to LNG exports from an export project like Jordan Cove situated on the U.S. West Coast as compared to projects on the other U.S. coasts. Most importantly, DOE should not put Jordan Cove at any disadvantage as it competes in the market, not only with U.S.

projects but also with proposed Canadian projects, to determine which export projects will be constructed and become operational. LNG exports from Canada (which would displace LNG exports from the U.S.) would have the same impacts on North American natural gas prices as LNG exports from the U.S., but the economic benefits of those exports would accrue to Canada and be lost to the United States. On the other hand, exports of Canadian gas via Jordan Cove will have the most limited impacts on U.S. prices of any proposed export terminal and, in constructing and operating its terminal, Jordan Cove will make a tremendous investment in a currently economically depressed region of the country, with the attendant employment and economic benefits accruing to the United States.

Thank you for your consideration of Jordan Cove's comments.

Sincerely,

/s/ Beth L. Webb

Beth L. Webb
Joan M. Darby

Attorneys for
Jordan Cove Energy Project, L.P.

cc: DOE/FE, Marc Talbert, marc.talbert@hq.doe.gov

NAVIGANT

3100 Zinfandel Drive
Suite 600
Rancho Cordova, CA 95670
916.631.3200 phone
916.852.1073 fax

January 22, 2013

Mr. Bob Braddock
Jordan Cove Energy Project, L.P.
125 W. Central Avenue, Suite 380
Coos Bay, OR 97420

Dear Mr. Braddock:

As you are aware, Navigant Consulting, Inc. (Navigant) has been involved in a number of liquefied natural gas (LNG) export projects including Jordan Cove Energy Project, L.P. (JCEP) in helping LNG project developers with their applications to the Department of Energy (DOE) for export of LNG to Non-Free Trade Agreement countries. Our involvement with the projects including JCEP has been primarily to assess the market impact of individual export projects as well as to investigate the pipeline infrastructure and natural gas supply that will be used to serve the requirements of the liquefaction terminals as proposed by the projects. In our analysis, we used Navigant's North American market model built on architecture provided by the GPCM® Natural Gas Market Forecasting System to perform analysis of the impact upon the existing market including prices over the long term.

In performing such analysis for JCEP, as well as other projects located on both coasts and in the Gulf of Mexico, Navigant has a number of comments we would like to make to the Office of Fossil Energy (FE) of the Department of Energy (DOE), which invited comments regarding the LNG Export Study commissioned by the DOE. We invite you to include Navigant's comments in your filing to the DOE in the subject proceeding. While we believe such comments are appropriate for JCEP's project, the comments below are relevant to all LNG export projects currently filed before the DOE for Non-Free Trade approval.

1. That the global market is best suited to determine the 'appropriate' level of U.S. LNG exports.

Rather than relying on any artificially-imposed limits on LNG export volumes, the DOE should allow the global marketplace to determine how much LNG export capacity should be built, who should build it, where it should be built, and ultimately what volumes of LNG exports should

occur. The detailed, macroeconomic component of the DOE's LNG Export Study[1] analyses serves to confirm that LNG exports will provide positive net economic benefits to the U.S. under all modeled scenarios, with increasing benefits associated with the increasing levels of LNG exports that result under the unconstrained export scenarios.[2]

- Arbitrary export level assumptions can yield infeasible study results.

  Whereas the EIA analysis incorporated static, *a priori* assumptions on LNG export volumes, the subsequent NERA analysis component of the DOE's LNG Export Study determined the LNG export levels within its global natural gas market model. As noted by the NERA analysis, "… in many cases, the world natural gas market would not accept the full amount of exports assumed in the EIA scenarios at export prices high enough to cover the U.S. wellhead domestic prices calculated by the EIA."[3] Thus, "[b]ecause the [NERA] study [in some cases] estimated lower export volumes than were specified by [DOE] for the EIA study, U.S. natural gas prices [projected by NERA] do not reach the highest levels projected by EIA."[4]

  For example, LNG exports as projected by the NERA analysis for the EIA Low Shale case never exceed 2.5 bcfd (well below both the 6 bcfd and the 12 bcfd export assumptions driving the EIA price forecasts), and this is the case that produced the most extreme pricing and price change results in the EIA analysis.[5] Thus, EIA's projected average wellhead price increase of 20 percent over the 20-year study for the 12 bcfd export level in the Low Shale case drops to less than 3 percent in NERA's analysis where global gas market modeling results in only achievable LNG export levels.

- Even if DOE were to permit all the applications, the market will decide which facilities get built.

  Obtaining a permit to export is no guarantee that a facility will be built. Companies routinely make their "final investment decision" subsequent to permitting activities. More importantly, market participants (investors, producers, consumers) will optimize

[1] DOE uses the term "LNG Export Study" to refer to two reports prepared at its direction: 1) the January 2012 analysis by the Energy Information Administration ("EIA") entitled "Effect of Increased Natural Gas Exports on Domestic Energy Markets," requested by the DOE's Office of Fossil Energy in August 2011 ("EIA analysis"); and 2) the December 2012 analysis by NERA Economic Consulting ("NERA") entitled "Macroeconomic Impacts of LNG Exports from the United States," commissioned by DOE under contract ("NERA analysis").
[2] NERA analysis, p. 1.
[3] NERA analysis, p. 3.
[4] NERA analysis, p. 10.
[5] For example, the Low Shale EUR case with the rapid introduction of 12 bcfd of exports resulted in a 54 percent increase versus the baseline wellhead price for the Low Shale EUR case in 2018 (EIA analysis, p. 9), and the Low Shale EUR case baseline average wellhead price over the term of the analysis was itself 40 percent higher than in the Reference case, at $7.37 versus $5.28/MMBtu (EIA analysis, Table B5).

project development activities more efficiently than would any centralized policy or planning direction via regulatory processes. This reality is confirmed by DOE in its 2011 Order conditionally granting export authorization for the Sabine Pass LNG project, in which DOE reiterated that its policy goals include "minimizing federal control and involvement in energy markets" so as to "minimiz[e] regulatory impediments to a freely operating market."[6]

- Even if some overcapacity occurs (for example, due to changes in the market), the market will still decide what levels of exports should occur.

  NERA's modeling effort indicates competitive export levels (that is, LNG export levels that result from the free interplay of supply and demand conditions) could be more or less than the EIA assumptions, but that price levels would remain in a competitive long-term equilibrium range, not linked to oil prices.

  NERA's analysis shows that even with no constraints on the upper end of LNG exports, there would not be any LNG exports in NERA's Low Shale case (with its higher price forecasts in the EIA analysis) except for in the Supply Shock plus Demand Shock international scenario, where exports peak at only 2.5 bcfd (in 2025).

  With plentiful gas supplies (e.g. High Shale case), while exports could exceed the 12 bcfd assumed by EIA, the U.S. price levels themselves still stayed below $6.00/MMBtu by 2035 for all NERA's international scenarios. Even NERA's Supply Shock plus Demand Shock international scenario, with average exports of about 17 bcfd, resulted in average wellhead prices over the 20-year study term of only $5.23/MMBtu.

  Under the EIA's U.S. Reference case, the only scenario where unconstrained exports ever exceeded 12 bcfd is the Supply Shock plus Demand Shock international scenario, where the average wellhead prices from 2015 through 2035 were still less than $6.30/MMBtu (and about $0.10/MMBtu less than for the EIA's Reference Case at a constant 12 bcfd).

- Regardless of modeling estimates, there are likely practical and competitive limits to how much of new LNG capacity will be located in the U.S.

  The global LNG market size in 2010 was about 27 bcfd in imports and exports[7], and is estimated by the International Energy Agency to roughly double in size by 2035. Assuming new U.S. capacity of about half of worldwide growth would be highly optimistic. Navigant's market view is that U.S. LNG export capacity will likely range from 6 to 8 bcfd. We also suggest export opportunities as being time sensitive, and rather than increasing in the future, the LNG export market for export from the U.S. may

[6] See DOE/FE Order No. 2961 (Opinion and Order Conditionally Granting Long-Term Authorization to Export Liquefied Natural Gas from Sabine Pass LNG Terminal to Non-Free Trade Agreement Nations), May 20, 2011, at 28.
[7] See NERA analysis, p. 19.

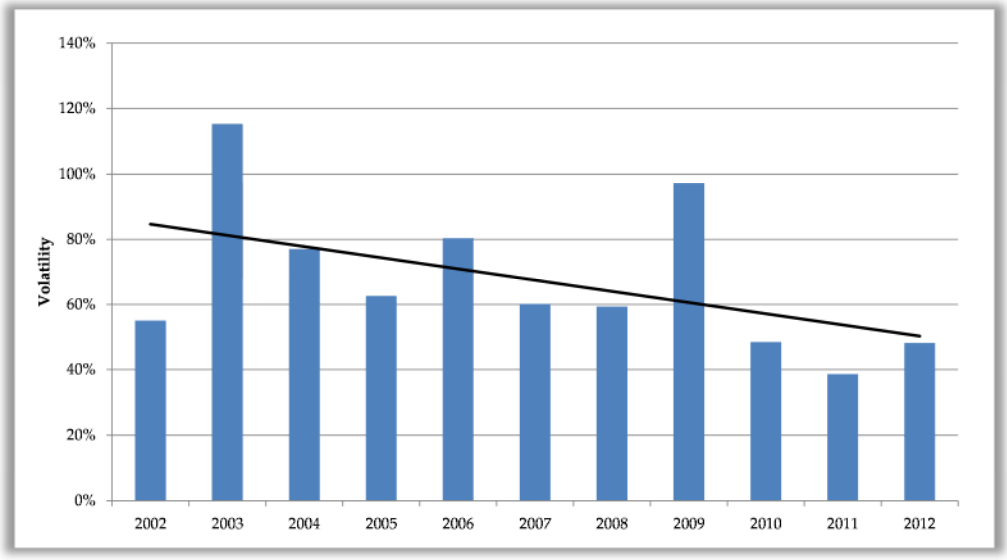
decrease due to supply development in other areas around the world from both known and unknown gas resources.

- There are drawbacks that would result from 'under-permitting' by DOE.

  In addition to the economic benefits of LNG exports, as detailed in the NERA analysis, LNG exports, to the extent they are permitted, will help foster the increasing stability of the domestic natural gas market. Because of the lower exploration and production risk associated with shale gas production resulting from the manufacturing-like nature of shale gas production, once shale plays have been identified, increasing levels of shale gas production should help to lower the volatility of the domestic gas market. LNG exports that increase natural gas demand thus provide two important benefits.

  First, new demand will help stabilize the current over-supply conditions in the domestic marketplace towards a market where supply and demand are in equilibrium. Second, new demand will increase the size of the natural gas market, leading to a continued increase in shale gas' share of total natural gas production, which will lower the price volatility of the gas market by increasing the overall supply responsiveness of the market. As shown in Figure 1 below, recent data seems to support decreasing levels of gas price volatility that correspond well with the recent increases in shale gas production levels. Artificially limiting the amount of LNG exports would be seen to slow the development of shale gas resources, and thus also slow potential future reductions in market price volatility.

Figure 1. Annualized Daily Volatility (Henry Hub)



Source: Navigant

With respect to market policy, a restrictive approach to LNG export approval (i.e., potential under-permitting by DOE) would be inconsistent with the DOE's stated

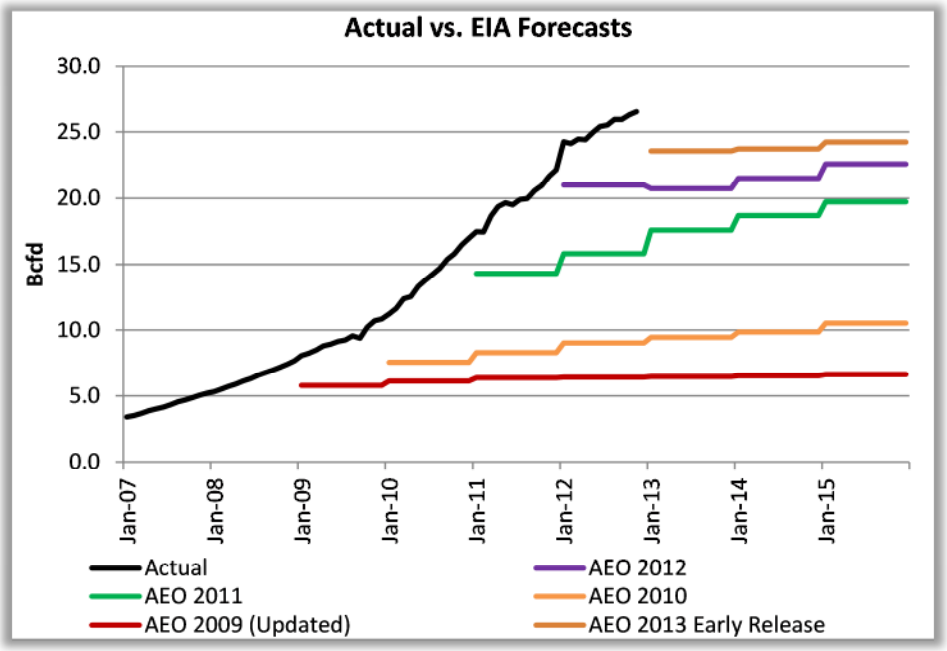
preference[8] for free-market approaches to regulatory oversight. An LNG export authorization process that implies the picking of winners by the regulatory process itself, as opposed to the marketplace, would limit competitive forces and not result in the optimization of project development.

2. The 2011 Reference Case U.S. natural gas supply volume assumptions used in the DOE's LNG Export Study are now drastically understated, and updated assumptions would only strengthen the showing of LNG export benefits.

The EIA's2011 Reference Case supply assumptions used in both analyses drastically understate the reality of today's abundant supply of shale gas. The 2011 Reference Case used was the Annual Energy Outlook (AEO) 2011 forecast shown in Figure Two, below. While the AEO 2011 shale gas production forecasts were already too low with respect to then-existing production levels when made, the continuing strong growth in actual production levels has made the forecast shortfall even larger for subsequent forecast years.

As can be seen in Figure 2, below, the AEO 2011 forecast for 2011 shale gas production (14.3 bcfd) was already eclipsed by actual shale production levels mid-way through 2010; at year-end 2010, actual production levels exceeded the AEO 2011 forecast for 2011 by more than 18 percent. In fact, the AEO 2011 forecast for 2013 shale gas production (17.6 bcfd) was already eclipsed by actual production levels in early 2011. As actual production levels have steadily continued their strong increases, year-end 2012 production levels of 26.5 bcfd were over 50 percent higher than the AEO 2011 forecast for 2013.

Figure 2. U.S. Shale Gas Production (Dry)

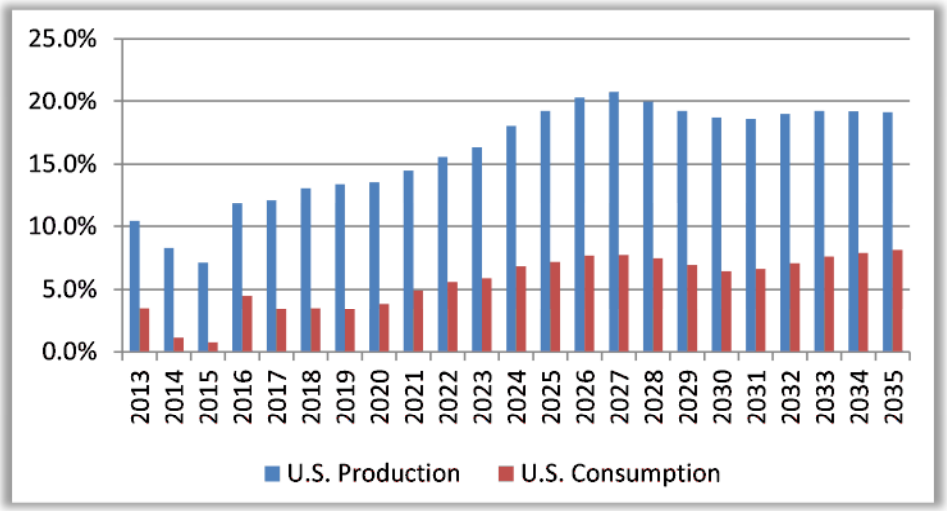


Source: Navigant, EIA

[8] See note 6, supra.

While some criticisms of the DOE's LNG Export Study have focused on the fact that the AEO 2011 *demand assumptions* have been surpassed by those of the AEO 2013, it is important to note that the increase in forecast total natural gas consumption has been far outpaced by the increase in the AEOs' natural gas production forecasts, as shown in Figure 3, below. For the period of 2013-2035, there was an average percentage increase in forecast total domestic natural gas consumption between AEO 2011 and AEO 2013 of 5.6 percent, while the increase in forecast total natural gas production was 16 percent. This important context helps explain why the more recent AEO 2013 assumptions actually indicate the beneficial market impacts that come along with LNG exports.

Figure 3. Percent Increase in Forecasted U.S. Natural Gas Production and Consumption, AEO 2013 vs. DOE Export Study (AEO 2011)



Source: Navigant

Comparing the AEO 2013 forecasts to the AEO 2011 forecasts illustrates an interesting shift in the domestic supply-demand balance. While the entire forecast period of AEO 2011 was characterized by domestic consumption exceeding total production, with a shortfall averaging about 4.0 bcfd from 2013 through 2035 being made up by LNG and pipeline imports to the U.S., in AEO 2013 that situation reverses itself by 2020. More specifically, an initial period of production shortfalls, averaging about 2.7 bcfd, becomes a period of production surpluses averaging about 4.9 bcfd from 2020 through 2035. This period of production surplus, relative to domestic total consumption, coincides generally with the ramping up of LNG exports from about 0.7 bcfd to an average of 3.4 bcfd during 2022 through 2035. Furthermore, the AEO 2013 assumptions of increasing natural gas production relative to domestic consumption and increasing LNG exports, relative to AEO 2011, are associated with a 20 percent lower average natural gas price level from 2013 through 2035 as measured at Henry Hub under AEO 2013 than under AEO 2011.

Thus, the use of a supply forecast more in line with current actual production levels than is the Reference Case (e.g. the AEO 2013 projection) would be expected to result in lower domestic gas prices than estimated in the DOE's LNG Export Study, and consequently increased LNG export volumes to global markets, which would lead to even higher economic benefits to the U.S.

3. Continual increase of production forecasts reflects the underlying natural gas resource abundance.

In any discussion of natural gas production forecasts, it is always instructive to note the key underlying factor behind the continually more optimistic and impressive production forecasts, and that is the reality of today's shale gas boom. The development of horizontal drilling and hydraulic fracturing, existing technologies which were combined together and have been continually improved, has yielded dramatically increased production and fundamentally changed the North American natural gas supply outlook. With U.S. shale gas resources estimated at up to 35 years of annual U.S. natural gas consumption at current levels,[9] pushing U.S. total natural gas resource estimates up to more than 90 years of supply, it is evident that a new era of natural gas sufficiency has arrived. Other estimates of the U.S. and North American natural gas resource base that have been prepared by other industry associations and government institutions are even higher.

Navigant is hopeful that these comments will be helpful for the DOE as it gets set to make decisions of high importance to the LNG export projects, to the natural gas industry, to other parties reliant upon abundant and clean natural gas as a fuel source, and to the country as a whole.

Respectfully submitted,

Gordon Pickering
Director, Energy
Navigant Consulting, Inc.

[9] See e.g. "Golden Rules for a Golden Age of Gas," International Energy Agency, Special Report, May 29, 2012, Table 3.1, putting U.S. shale gas recoverable resources at 24 tcm, or 840 tcf.