The Debate Over LNG Exports: "Make or Break" Time for Efforts to Expand US Production

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United States Energy Association Washington DC – January 30, 2013

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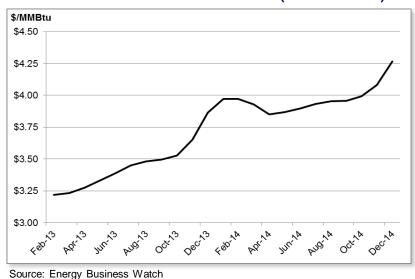
Setting precedent.

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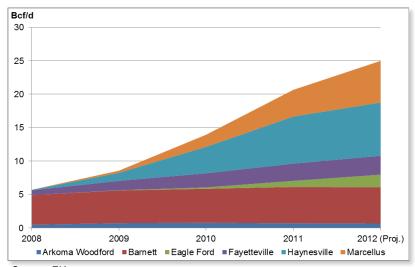
Urgent Need for New Sources of Demand

- Prices remain extremely weak
 - Downside risk continues
- Even at sub-\$4.00/MMBtu prices, demand needle difficult to move
- Despite flight from dry gas-only plays, shale production continues to grow
- Natural gas liguids (NGL) prices under increasing pressure

NYMEX NATURAL GAS FORWARD STRIP, FEBRUARY 2013 TO DECEMBER 2014 (AS OF 01/08/13)



US SHALE GAS PRODUCTION, 2008 TO 2012

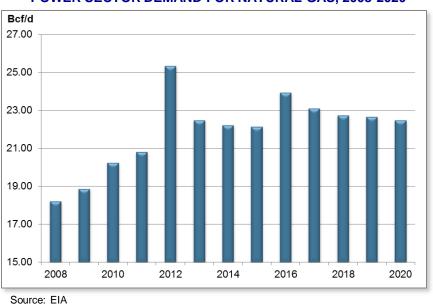


Source: EIA

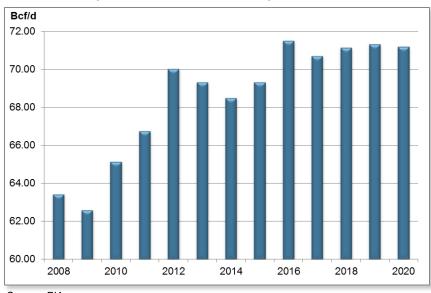
LNG Exports Best Opportunity for Growth This Decade

- At prices above \$3.50-\$4.00/MMBtu, power-sector demand not likely to return to 2012 levels for many years
- Near-to-medium term scale size of most other opportunities for growth significantly smaller

ANNUAL ENERGY OUTLOOK 2013, POWER SECTOR DEMAND FOR NATURAL GAS, 2008-2020



TOTAL US DEMAND FOR NATURAL GAS (EXLUDING LNG EXPORTS), 2008-2020



Industry's Health Depends Upon LNG Exports

- Capturing market share not a slam dunk
 - Global demand for natural gas expected to grow rapidly
 - But numerous other potential new sources of supply
 - Both LNG and pipeline imports will play a major role
- By acting quickly, US and Canadian exporters can become major players
 - Many studies underestimate potential
- No other comparable opportunity to grow demand as rapidly in relatively short time period
- Fear that US prices could rise dramatically reflects lack of adequate understanding of:
 - North American supply options
 - Likelihood of continued efficiency improvements and increases in yields



Strong Opposition with Political Clout

Strange bedfellows

- Industrial manufacturers in energy-intensive industries
 - Fear of impact of exports on US prices
 - Desire to maintain competitive advantage
- Major environmental groups
 - Anti-fracking crusade
- Sophisticated and politically adept
- Three venues to oppose:
 - 1. DOE
 - 2. Congress
 - 3. Courts
- All three must be taken seriously
 - Closely inter-related
 - DOE process likely to significantly influence Congress and drive judicial review
- To maximize market penetration, US developers must clear all three hurdles without significant delay

Focus on DOE

DOE approval required to export LNG from United States

 Standards differ sharply depending upon whether destination market has Free-Trade Agreement (FTA) with US

Bifurcated responsibility within DOE

- Office of Fossil Fuels
- FERC (includes NEPA review)

More than twenty applications filed

- Potential exports of 27 Bcf/day
- Approval to export to non-FTA countries essential for most projects

All major hurdles cleared for one project: first phase of Chenier

- Includes off-take agreements and financing
- Tolling agreement structure

Status of remaining projects varies

- But none can go forward unless DOE approves

Legal Process More Important Than Many Recognize

- "Public interest" standard
 - Gives DOE broad discretion
 - Specific phrasing appears to be tilted towards applicant
- Unless project fails technical review by FERC, three issues likely to be pivotal issues:
 - Impact on US prices for natural gas and electricity
 - Competitive impact on US manufacturers and jobs
 - Other potentially offsetting risks and/or benefits
- Extent of FERC's discretion may not be as broad as phrasing of statutory standards suggests
 - Long history of interpreting "public interest" under federal energy law
 - DOE must:
 - Engage in "reasoned decision-making"
 - Develop a proper administrative record
 - Provide sound reasons for its decisions based upon record evidence
- Strength of industry's case will matter and in all likelihood ultimately be dispositive

Studies Conducted by DOE

- To assist it in assessing economic impacts of allowing exports,
 DOE has directed preparation of two studies applicable to all pending dockets:
 - US Energy Information Administration (EIA) published last January
 - NERA Economic Consulting (NERA) released December 5th
- EIA estimates potential increase in US prices in a range of different scenarios
 - Based upon Annual Energy Outlook 2011
- NERA uses EIA estimates as its starting point and assess macro-economic impacts of allowing exports

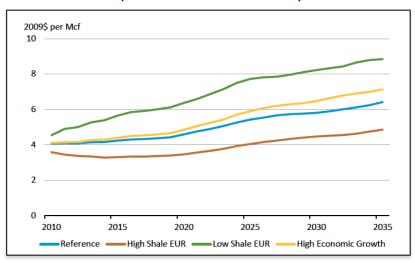
Main Event

- DOE is seeking comments on both studies
 - Any interested person allowed to participate
 - Incorporated into record of every pending application
 - February 25th deadline
- Essential to review both studies carefully
 - One-liners in Executive Summaries can be misleading
- To greater degree than many recognize, strength of comments filed by opposing parties may ultimately determine:
 - Number of projects approved
 - Extent to which efforts to expand US demand for natural gas are successful
- From a legal standpoint, obtaining permit to export LNG to non-FTA countries is only first step
 - Must also survive potential assault in the courts

EIA Study Raises Major Issues

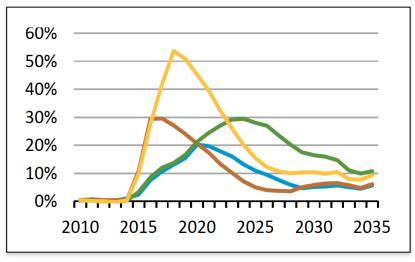
- Based upon thoroughly out-of-date assumptions and data
- In most instances, impact of LNG exports on US prices modest
- But very steep in others
 - Results partially from ramp-in assumptions

NATURAL GAS WELLHEAD PRICES IN BASELINE CASES (NO ADDITIONAL EXPORTS)



Source: EIA

NATURAL GAS WELLHEAD PRICE DIFFERNCE FROM BASELINE CASE – LOW SHALE EUR

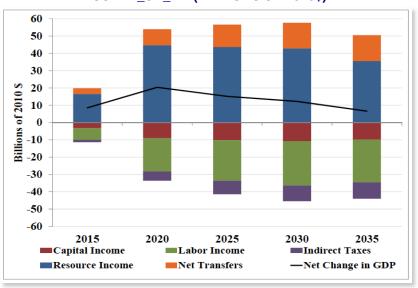


Source: EIA

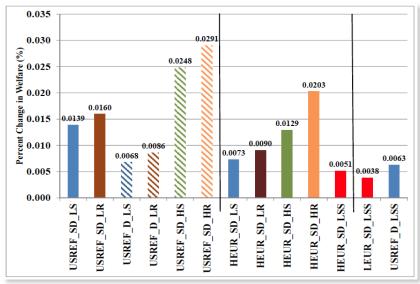
NERA Report Has Ammunition for Both Sides

- NERA finds that "in every scenario it has examined, there is a net economic benefit"
- But report must be examined in detail
 - Relies on EIA cost estimates
 - Finds that in every scenario it examined, employment wages & investor income would be reduced
 - Does not assess macroeconomic impacts of EIA's high cost scenarios
- Already being harshly criticized

CHANGE IN INCOME COMPONENTS AND TOTAL GDP IN **USREF SD HR (BILLIONS OF 2010\$)**



PERCENTAGE CHANGE IN WELFARE FOR NERA CORE **SCENARIOS**



Source: NERA

Source: NERA

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Next Steps

- Comments will be critical
- Key issues:
 - 1. Potential impact of LNG exports on US/North American energy prices
 - Impact on US economy (including employment, wages and global market share for US manufacturers)
 - 3. Broader environmental and geopolitical impacts
- Work required is daunting
- But implications for the natural gas industry and the US economy are huge
- Importance of acting quickly to capture available market share increases complexity of challenge

THE DEBATE OVER LNG EXPORTS

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