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Liquid Markets: Assessing the Case for U.S. Exports of LNG

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Research Introduction

- Research Process
  - » Expert input from Natural Gas Task Force
  - » Report reflects task force input but not group consent
  - » Invited expert testimonials on specific topics
  - » Analysis of existing data and additional research/ interviews

Research Introduction

- Study Outline
  - » Part 1: **Feasibility** of LNG exports
    - – Domestic supply, domestic demand, and international gas markets
  - » Part 2: **Implications** LNG exports
    - – “Public interest”: impact on other sectors, economic impact, jobs, US energy security, balance of trade, international implications, environment
  - » Part 3: **Conclusions and recommendations**

Feasibility

- Dependent on:
  - » Size of resource base
  - » Environmental policy and regulations
  - » Sustainability of production
- Given existing knowledge, exports are technically and logistically feasible

Implications: Natural Gas Price Increase

- The price implications of exports on domestic prices is likely to be modest

Study-by-study comparison of the Average Price Impact from 2015-2035 of 6 bcf/day of LNG exports (unless otherwise noted)

Study	Average Price without Exports ($/MMBtu)	Average Price with Exports ($/MMBtu)	Average Price Increase (%)
EIA*	$5.28	$5.78	9%
Deloitte	$7.09	$7.21	2%
Navigant (2010) (2 bcf/day of exports)**	$4.75	$5.10	7%
Navigant (2012)***	$5.67	$6.01	6%
ICF International***	$5.81	$6.45	11%

* Price impact figure for EIA study reflects the reference case, low-slow export scenario.

** The Navigant study did not analyze exports of 6 bcf/day.

*** Navigant (2010 and 2012) and ICF International studies are based on Henry Hub price.

Source: EIA, Deloitte, Navigant, ICF International.

Implications: Electricity and Industrial Sectors

- The electricity and industrial sectors will not see dramatic changes in prices or competitiveness

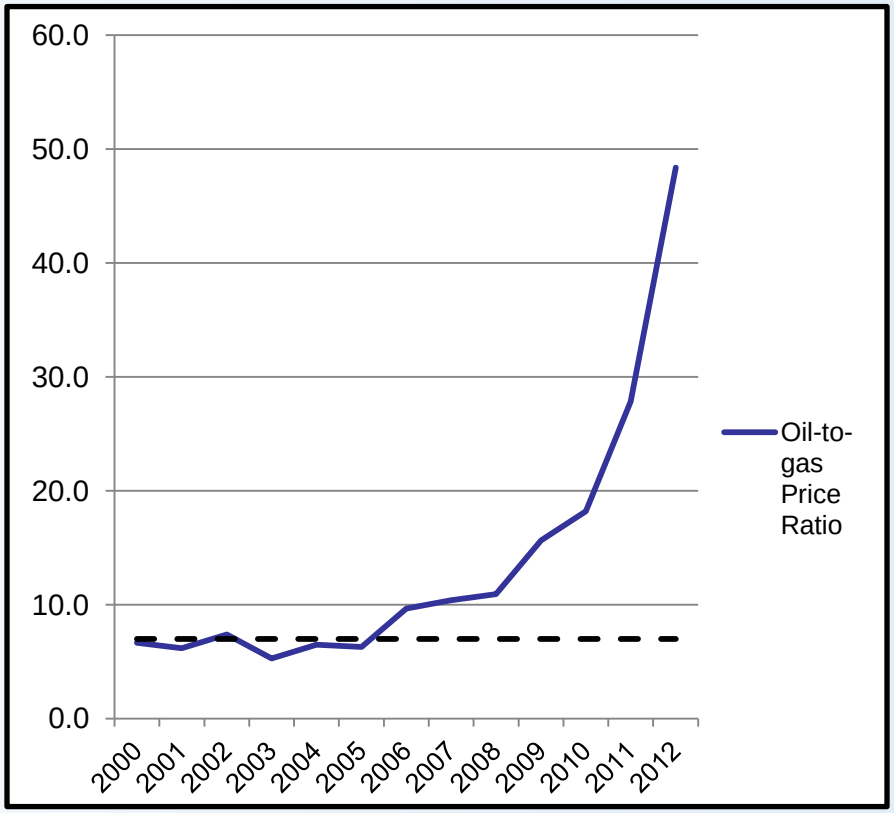
Increase in Electricity Prices as a Result of 6 bcf/day of exports, 2035

Study	Estimated Increase in Electricity Prices ($/MWh)
EIA*	$1.40-$2.90/MWh
Deloitte	$1.65/MWh
ICF International	$1.66-$4.97/MWh

* EIA range does not include high-rapid export scenario

Source: EIA, Deloitte, ICF International

Brent-to-Henry Hub Price Ratio, 2000-2012*



* 2012 prices average of prices from January-March 2012

Source: EIA

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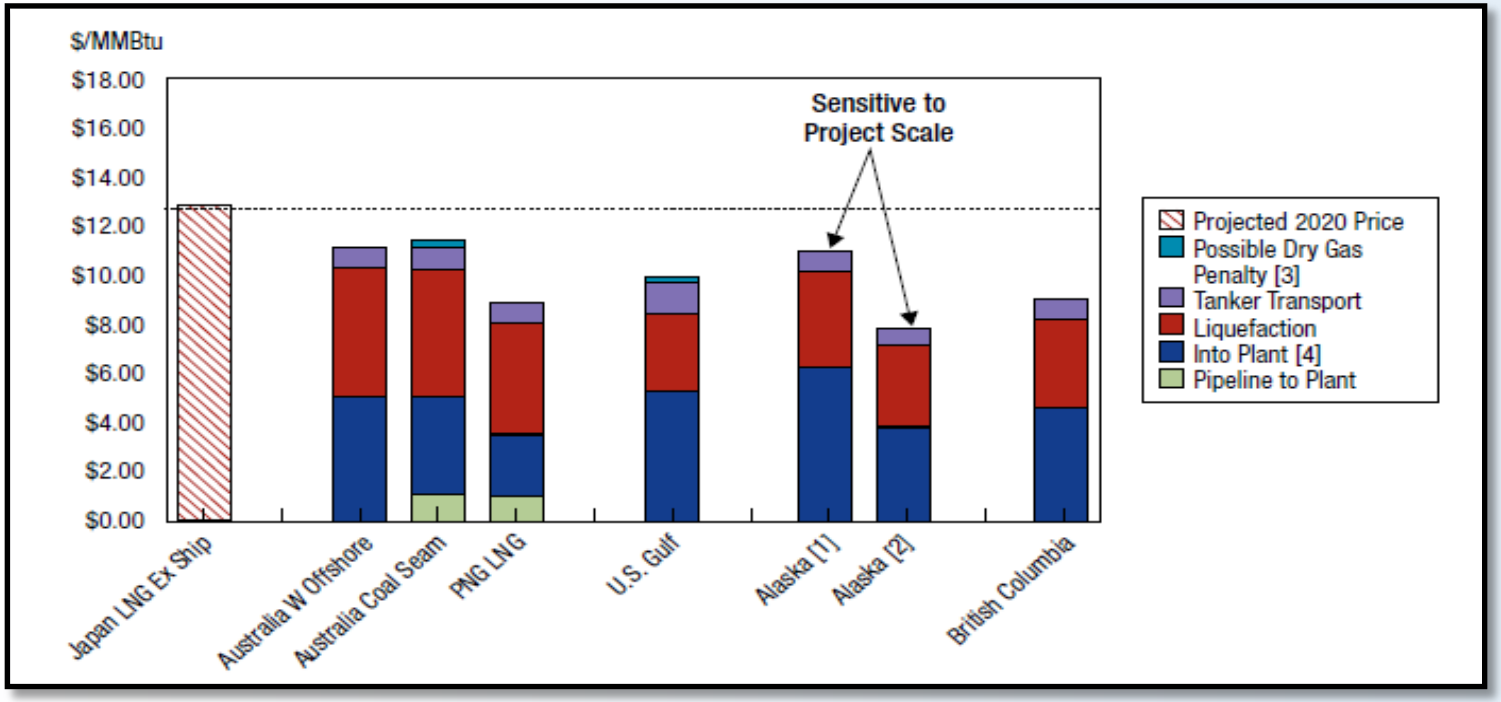
Implications: International Pricing and Geopolitics

- The market will put a natural cap on how much LNG will be economic to export

Estimated Costs of Delivering LNG to Japan in 2020 ($/MMBtu)



[1]: Assumes 1 bcf/day of exports from Valdez, Alaska
[2]: Assumes 3.1 bcf/day of exports from Valdez, Alaska
[3]: Dry gas penalty is assumed at 2%
[4]: Opportunity cost for Alaska and B.C.
Source: Client Presentation by James Jensen, President, Jensen and Associates

Conclusions

- Exports are feasible
- Natural gas prices will increase modestly
- Negligible impact on price and competitiveness of electricity and industrial sectors
- Limited macroeconomic, jobs, or environmental impact
- Exports would erode (but not dramatically alter) oil-linked LTCs in Asia and Europe
- Geopolitical benefits to increased LNG supply and supply diversity
- Market considerations will limit the arbitrage opportunity and economic feasibility of export projects

Recommendations

- The U.S. government should neither prohibit nor promote LNG exports
- Capping exports would distort markets and likely have unintended consequences
- The U.S. has an interest in continuing to promote free trade