

26th World Gas Conference

1 – 5 June 2015, Paris, France



An Assessment of North American Natural Gas Exports

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US REGULATORY PROCESS FOR LNG

- Before 2014, LNG exports to non-FTA countries in particular were subject to highly bureaucratic process
 - Approval from DOE and FERC, EIS required, all had to wait in queue regardless of impact
- May 2014: DOE revised process to grant public interest approval after project has secured NEPA requirement
 - To streamline process by prioritizing mature projects
 - To increase industry confidence in process

NORTH AMERICAN LNG STATUS

US historically Canada's top customer; with increase in US production, Canada must find a new market

- In 2013 Canadian exports to Northeast US dropped 12% because of Marcellus
- Canada eyeing Asian markets, 19 proposed plants
- Major environmental pushback from First Nations
- US has approved 5 export terminals
 - Total approved US capacity 10.62 Bcfd

PROPOSED LNG PROJECTS - PRECEPTS

Almost all existing analysis based on 3 central precepts:

1. Spot prices at Henry Hub will remain low
 - They are actually projected to rise gradually
2. Prices in Asia & Europe will remain high
 - Recently they have tumbled
3. Low prices will stimulate steady demand growth
 - Actually, low prices = market response to supply surplus & demand deficit

FORCES DETERMINING WORLD GAS MARKET

1. Pace of China's increased imports from Russia & C. Asia
2. Degree & pace other countries develop shale reserves
3. Inter-fuel competition from other sources, esp. in Asia
4. Russia's LNG exports to Asia
5. Speed & degree to which Japan re-engages nuclear
6. Ability to make LNG a transport fuel: US, India, & China
7. Carbon price?

LIMITS FOR US PROJECTS

US projects (particularly Brownfield) favorable due to low capital costs, Henry Hub pricing, and flexible contracts, but:

1. Low capital costs not uniform across US
2. Capacity costs may rise with labor demand
3. Oil price determines competitiveness of alternatives
4. Uncertainty regarding the absorptive capacity of Europe
 - Could be successful in liquid parts of the market (i.e. NBP, TTF, Zeebrugge).

LIMITS FOR CANADIAN PROJECTS

1. Timing for market penetration into Asia
 - Projects not currently financed have, given supply glut, less chance of getting to market before 2020
 - Already behind goal to have one terminal by 2015
2. Lack of confirmed projects
 - US has a few, Canada has none with full approval
3. Predicted continuation of US-Canadian trade erosion
 - US continues to increase pipeline exports to Mexico
 - 300,000 Mcf in 2010 to 700,000 Mcf in 2014

CONCLUSIONS

1. Though no outright bans exist, regulations for LNG exports to non-FTA countries are convoluted
2. Expect 2-3 US LNG projects by 2020, 5-6 by 2025
 - Beyond 2025, too many uncertain variables to make predictions of LNG projects and their viability
3. Canada LNG terminal unlikely by end of decade

N. American LNG will diversify global supply, and US will become significant LNG exporter