LNG Exports and The Bridge to Nowhere

How Fracked Gas is a *False Solution* to Energy Independence and Climate Disruption

Brian Kunkemoeller – Sierra Club Ohio Chapter

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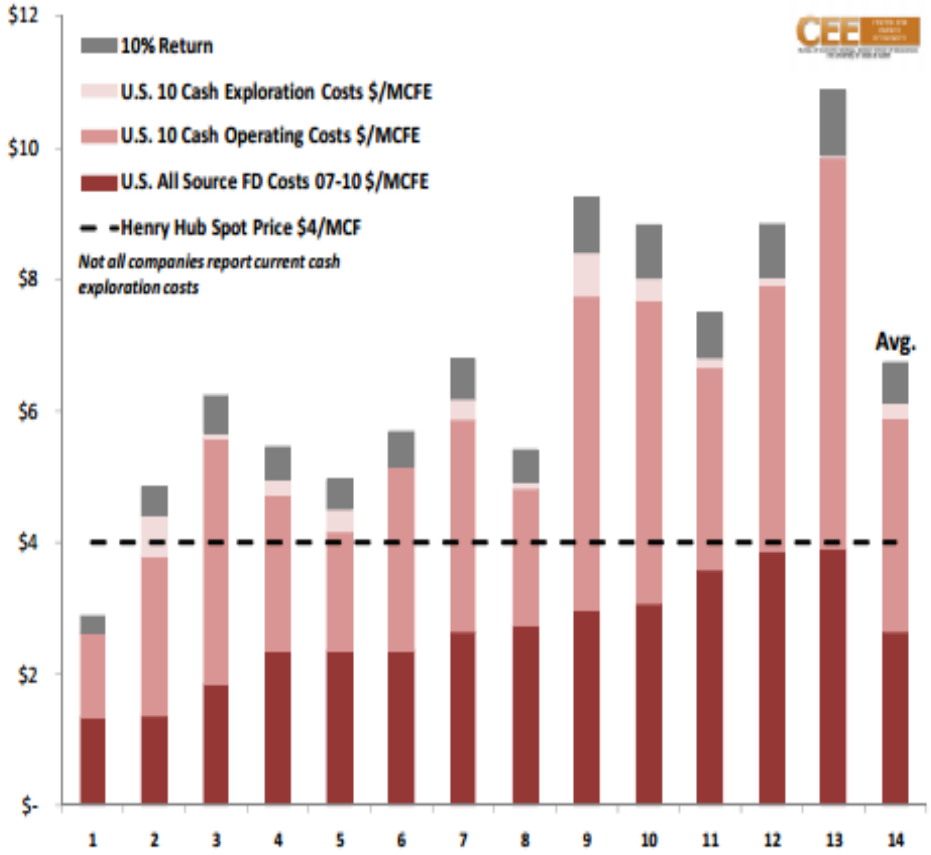
Figure 13: U.S. Natural Gas Average Breakeven Costs (2007-2010)



Sources: Compiled by author based on work by Foss and Wainberg using industry financial reports.[32]

<<< Can Shale Gas Development Sustain Low Prices?

"… highly respected Bernstein Research noted in a May 27, 2011 advisory to clients that they cannot corroborate 'any company's claim that its fully-loaded cost of production is below $4 or even $4.50/MCF.' Excluding land cost and with no return, the average large cap E&P needed $5/MCF gas to cover its 2010 F&D costs and operating expenses. Including acreage costs and a required return on capital, the required price is easily in the $6.00s – and this is for the large producers."

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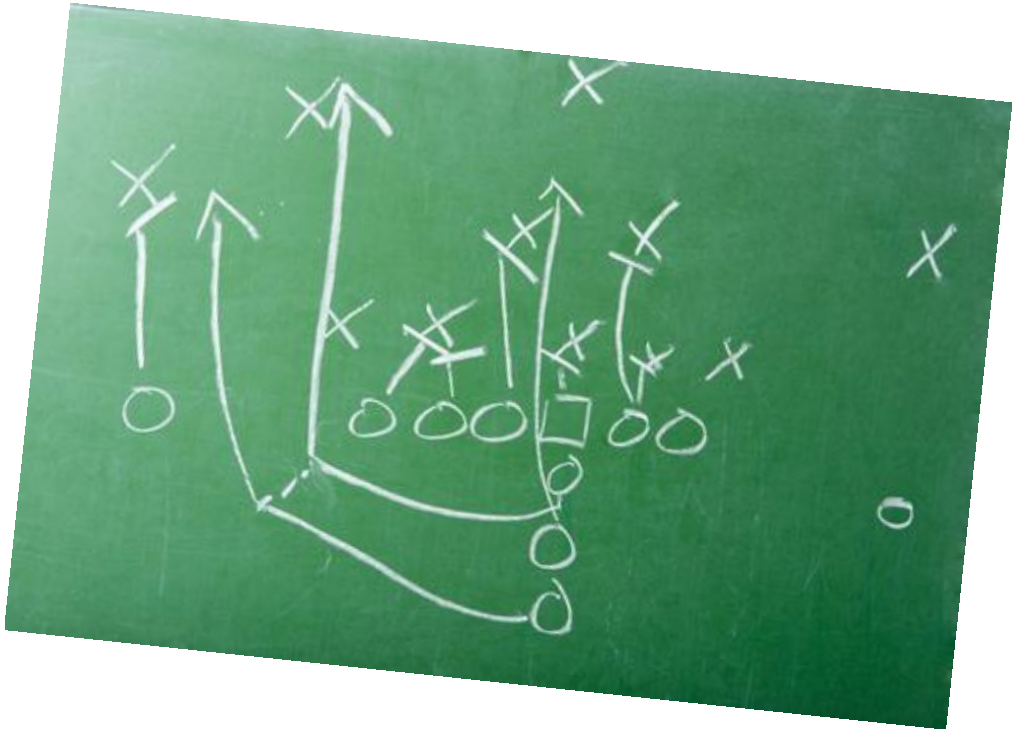
The Playbook: How to "Stabilize Profits"



Short Term:
Bundling –
The "Plug and Play" shale game

Mid-Term:
The Oil and Natural Gas Liquids (NGL) "Bump"
Build LNG Infrastructure: Pipelines + Facilities

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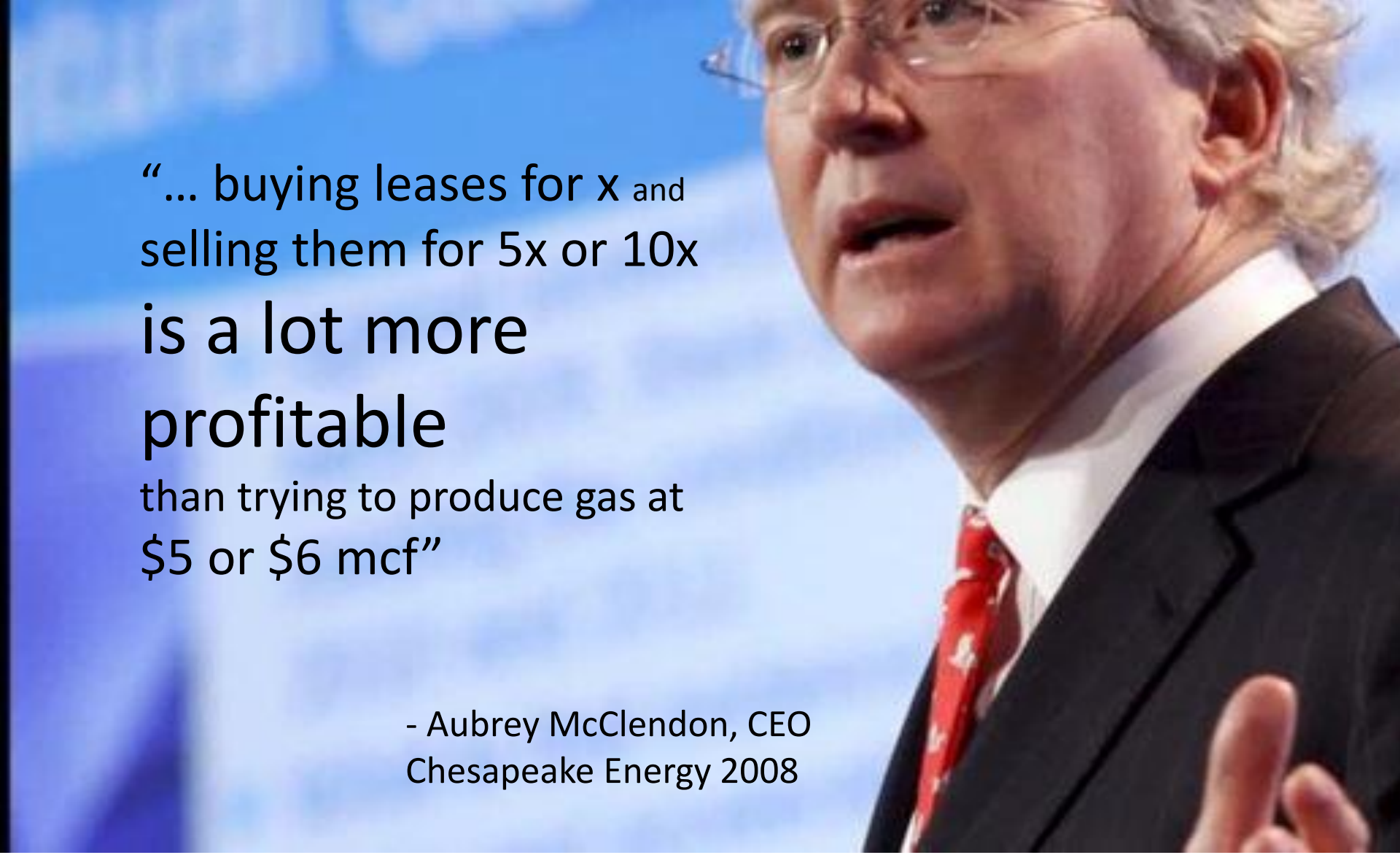

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The Utica Shale and the NGL "Bump"

2012 Well Production –
Percentage of Oil / NGL / NG?

"Midstream" indicates NGL
- ATEX ethane pipeline
- Cryogenic Fractionation Facilities
- Natrium Plants

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The Utica Shale and the NGL "Bump"

Gathering Assets

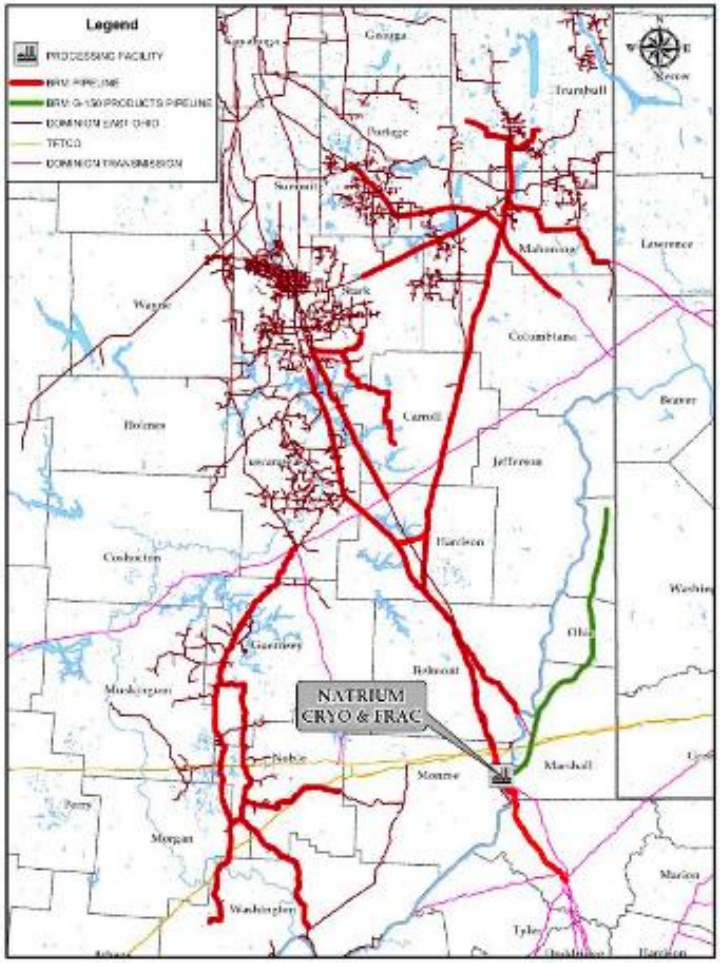
- ❑ DEO and DTI rich gas gathering lines
- ❑ 500+ miles of 8"-30"
- ❑ In heart of Utica

Processing

- ❑ 200 MMcf/d Natrium plant
  - ➢ Start-up March 2013
  - ➢ Expandable footprint
- ❑ 200 MMcf/d cryo skid

Fractionation/NGLs

- ❑ 36,000 Bbls/d fractionator
  - ➢ Expandable to 59,000
  - ➢ Butane splitter
- ❑ 60-mile ethane pipeline
- ❑ Rail and truck loading
- ❑ Barge access in Phase II



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Natural Gas Overview: World LNG Prices

Federal Energy Regulatory Commission • Market Oversight • www.ferc.gov/oversight

World LNG Estimated March 2013 Landed Prices

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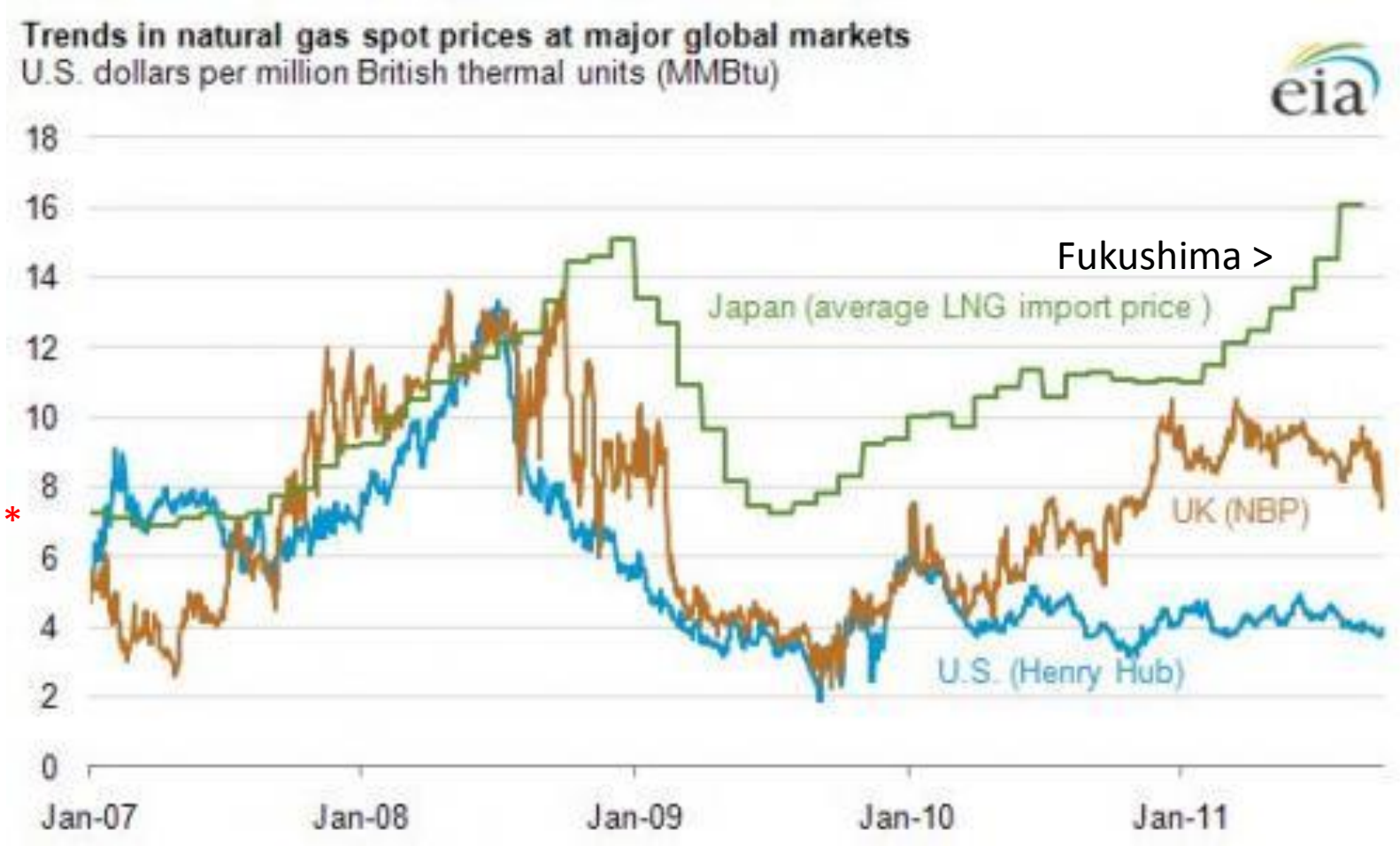

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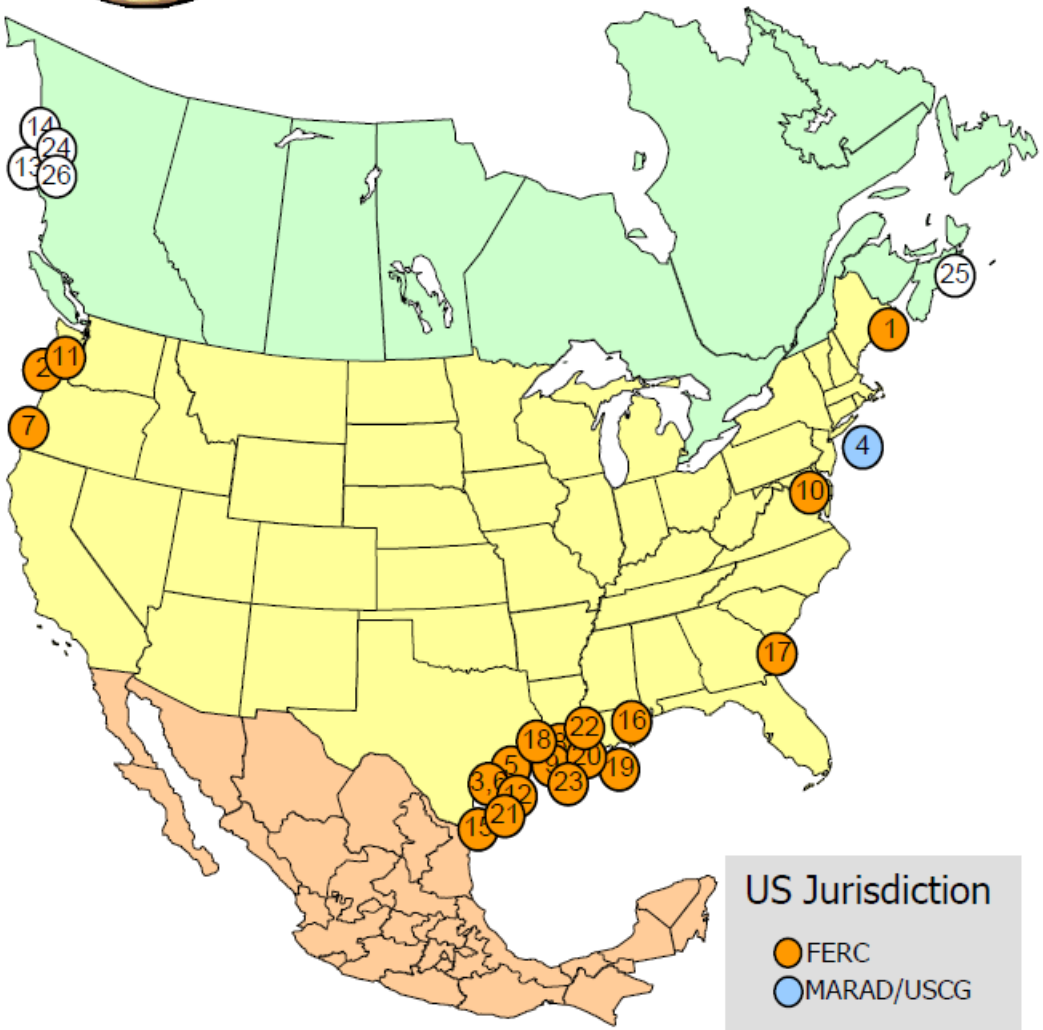
North American LNG Import/Export Terminals

Proposed/Potential



Import Terminal

PROPOSED TO FERC

1. **Robbinston, ME:** 0.5 Bcfd (Kestrel Energy - Downeast LNG)
2. **Astoria, OR:** 1.5 Bcfd (Oregon LNG)
3. **Corpus Christi, TX:** 0.4 Bcfd (Cheniere – Corpus Christi LNG)

POTENTIAL U.S. SITES IDENTIFIED BY PROJECT SPONSORS

4. **Offshore New York:** 0.4 Bcfd (Liberty Natural Gas)

Export Terminal

PROPOSED TO FERC

5. **Freeport, TX:** 1.8 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction)
6. **Corpus Christi, TX:** 2.1 Bcfd (Cheniere – Corpus Christi LNG)
7. **Coos Bay, OR:** 0.9 Bcfd (Jordan Cove Energy Project)
8. **Lake Charles, LA:** 2.4 Bcfd (Southern Union - Trunkline LNG)
9. **Hackberry, LA:** 1.7 Bcfd (Sempra – Cameron LNG)
10. **Cove Point, MD:** 0.75 Bcfd (Dominion – Cove Point LNG)
11. **Astoria, OR:** 1.30 Bcfd (Oregon LNG)
12. **Lavaca Bay, TX:** 1.38 Bcfd (Excelerate Liquefaction)

PROPOSED CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

13. **Kitimat, BC:** 0.7 Bcfd (Apache Canada Ltd.)
14. **Douglas Island, BC:** 0.25 Bcfd (BC LNG Export Cooperative)

POTENTIAL U.S. SITES IDENTIFIED BY PROJECT SPONSORS

15. **Brownsville, TX:** 2.8 Bcfd (Gulf Coast LNG Export)
16. **Pascagoula, MS:** 1.5 Bcfd (Gulf LNG Liquefaction)
17. **Elba Island, GA:** 0.5 Bcfd (Southern LNG Company)
18. **Sabine Pass, TX:** 2.6 Bcfd (ExxonMobil – Golden Pass)
19. **Plaquemines Parish, LA:** 1.07 Bcfd (CE FLNG)
20. **Cameron Parish, LA:** 0.16 Bcfd (Waller LNG Services)
21. **Ingleside, TX:** 1.09 Bcfd (Pangea LNG (North America))
22. **Lake Charles, LA:** 0.54 Bcfd (Magnolia LNG)
23. **Cameron Parish, LA:** 0.20 Bcfd (Gasfin Development)

POTENTIAL CANADIAN SITES IDENTIFIED BY PROJECT SPONSORS

24. **Prince Rupert Island, BC:** 1.0 Bcfd (Shell Canada)
25. **Goldboro, NS:** 0.67 Bcfd (Pieridae Energy Canada)
26. **Kitimat, BC:** 2.0 Bcfd (LNG Canada)

As of February 21, 2013

President Obama: Put the Brakes on Fracked LNG Exports

Right now, communities across the country are already fighting climate change and the fracking industry for clean air and clean water. And the stakes have gotten even higher the potential for more fracking so the natural gas industry can export liquefied natural gas (LNG) to other countries.

President Obama is only hearing one side of the story from the Department of Energy, and it favors the natural gas industry. DOE's recent study on the economics of fracked gas exports completely ignores the public health, environmental, and climate costs of an export rush.

Let's remind President Obama of all the other costs -- the cost of buying drinking water because your well is polluted with fracking chemicals, lost work days because your child is sick due to respiratory problems, and increasing utility bills to heat our homes while communities are left to pay the price for fracking.

Send your letter today. Tell President Obama to put the brakes on exporting fracked gas.

1. Complete the form below with your information.
2. Personalize your message if you wish.
3. Click the Send Your Message button to send your message to:
    - President Barack Obama

Send Your Message

Enter Your Information:

Required fields

Personalize Your Message:

We need a timeout on LNG exports

DOE Decisions on LNG Export Terminals

Department of Energy must evaluate *whether export is in the public interest before issuing any approval* to export LNG to non-free trade countries such as China and Japan.

Study #1: Analyzed impacts of increased domestic natural gas demand (Jan 2012)

"Increased natural gas exports lead to higher domestic natural gas prices, increased domestic natural gas production, reduced domestic natural gas consumption, and increased natural gas imports from Canada."

Study #2: will consider macroeconomic impacts – such as effects on domestic manufacturing jobs.

DOE has stated it will not grant final authorization until these two studies are complete and public has had the chance to weigh in**. This is a great opportunity to weigh in and demand environmental impacts be considered as part of the economic impacts study**.

*****Fall Comment Period*****

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Planned Ohio LNG Export Infrastructure: NEXUS Pipeline

Enbridge, DTE And Spectra Plan To Build Ohio Natural Gas Pipeline

CP | By Lauren Krugel, The Canadian Press
Posted: 09/04/2012 10:53 am Updated: 09/04/2012 5:54 pm

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Enbridge, DTE and Spectra plan to build Ohio natural

THE CANADIAN PRESS

CALGARY - Enbridge Inc. and two American partners are planning to build a pipeline to connect natural gas from Ohio shale fields to markets in the U.S. Midwest and Ontario.

The Calgary-based company (TSX:ENB), Spectra Energy Corp. and DTE Energy announced Tuesday they are teaming up

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Planned Ohio LNG Export Infrastructure: Lake Erie Export Terminal (Ontario)

Ohio Utica Shale

Great Lakes natural gas corridor planned by Shell

By BOB DOWNING Published: March 14, 2013

from Royal Shell from March 5:

Shell to Develop Two Additional Natural Gas for Transport Corridors in North America. Through further investments in LNG for Transport. Shell plans to utilize North American natural gas to provide an innovative and cost-effective fuel for its commercial customers.

Shell and its affiliates plan to bring liquefied natural gas (LNG) fuel one step closer for its marine and heavy-duty on-road customers in North America by taking a final investment decision on two small-scale liquefaction units.

These two units will form the basis of two new LNG transport corridors in the Great Lakes and Gulf Coast regions. This decision follows an investment decision in 2011 on a similar corridor in Alberta, Canada. Shell is also working to use natural gas as a fuel in its own operations.

"Natural gas is an abundant and cleaner-burning energy source in North America, and Shell is leveraging its LNG expertise and integrated strength to make LNG a viable fuel option for the commercial market," said Marvin Odum, President, Shell Oil Company. "We are investing now in the infrastructure that

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The True Cost of Natural Gas Exports?

- Exorbitant Prices: increase in manufacturing costs, electricity costs, gas bills

- Multifold domestic increases in dangerous extraction, toxic waste, climate disrupting emissions, public health costs, freshwater resource losses

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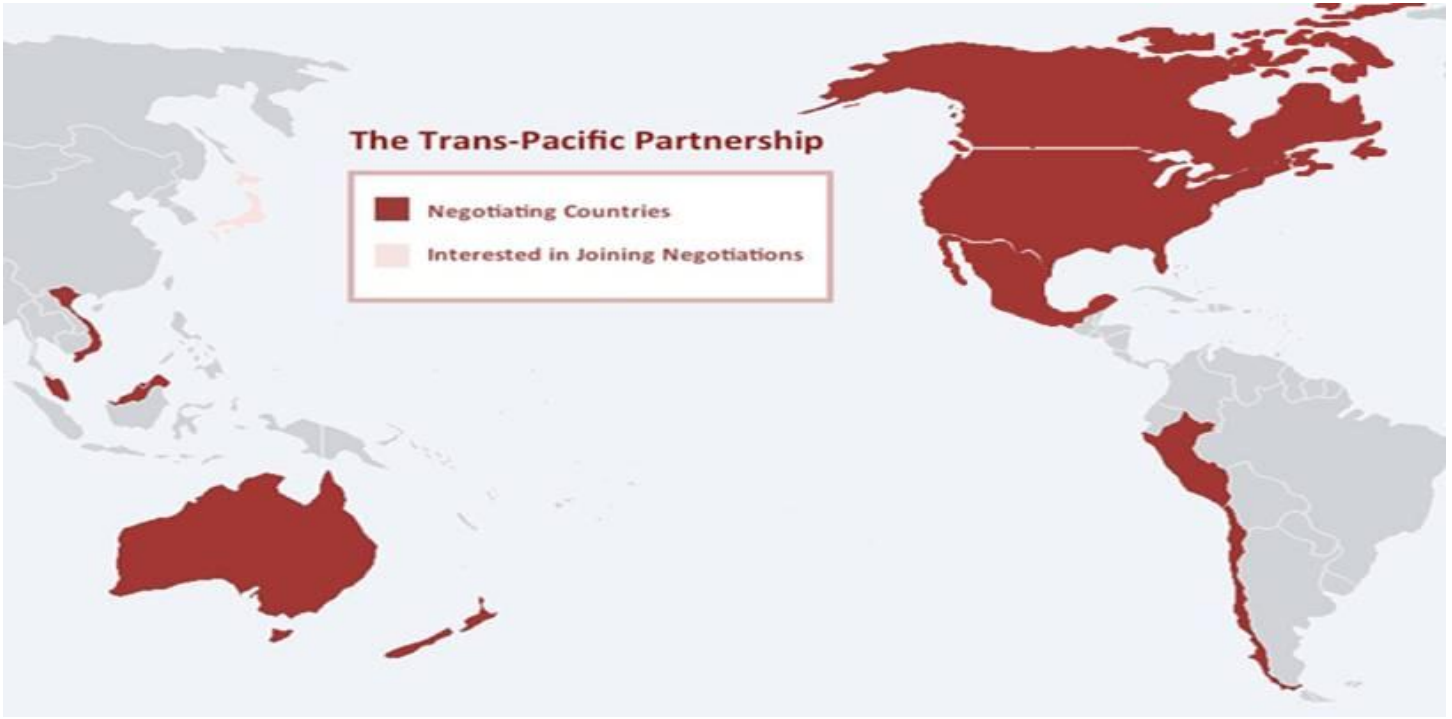
The Trans-Pacific Partnership:



A Free Trade Agreement to *guarantee DOE approval* of <u>all LNG export terminals</u>

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The TPP Is a Back Room Deal Being Negotiated in Secret

Members of Congress, journalists, and civil society are excluded from seeing draft texts

600 corporate advisors have access to key texts and proposals

Draft texts and proposals will not be released **until four years after** the talks have concluded or a deal is reached

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Investor Protections – The "Citizens United" of International Law?

LONE PINE

VS

$250M Suit for "lost business" from "arbitrary and capricious" fracking ban in Quebec

http://www.sierraclub.org/trade/toolkit/default.aspx

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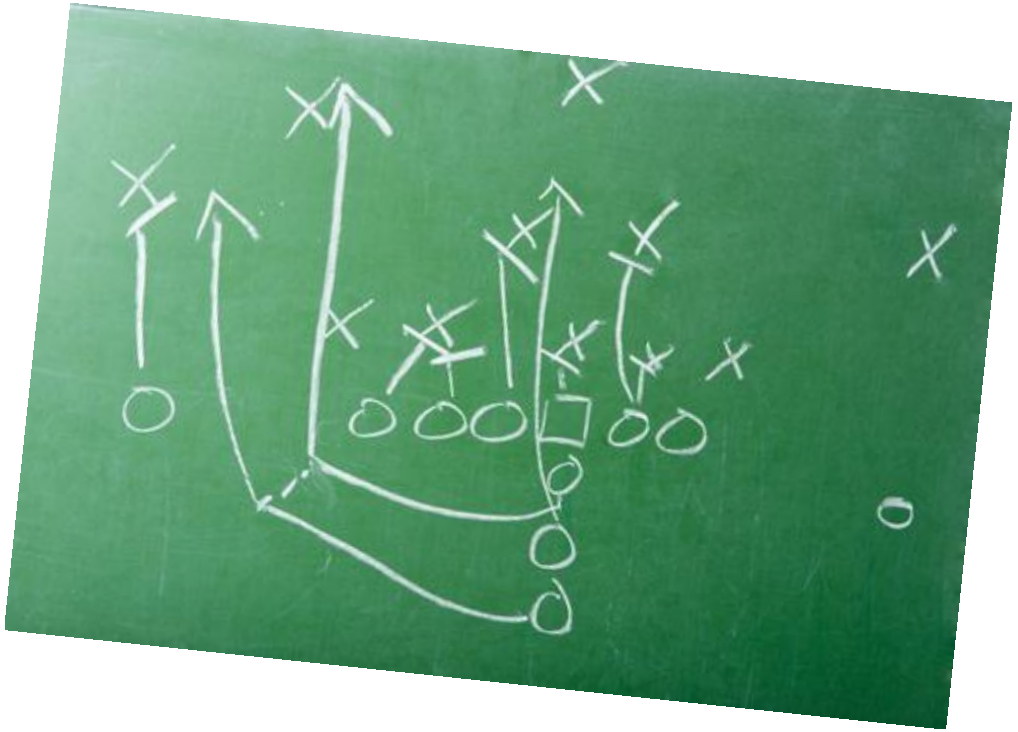
The Playbook: How to "Stabilize Profits"



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A Bridge Fuel?

From actual FirstEnergy talking points:

Focusing on Our Energy Future

Ohio has an opportunity to be a national leader in energy production and create thousands of new jobs associated with the Marcellus and Utica shale reserves. These vast energy reserves will also support Ohio's recovery by providing low-cost electricity for business and industry. When you consider the costs of energy efficiency, you have to wonder why Ohio would mandate increasing energy efficiency benchmarks instead of developing a low-cost, domestic energy source within our state.

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Protect Ohio's Senate Bill 221

OHIO'S INDUSTRY AT A GLANCE

- Over 25,000 Ohioans employed in the clean energy sector with over 400 companies
- Over 10,000 Ohioans employed in the energy efficiency sector
- One of the most diverse wind supply chains in the country
- Nationally renowned solar manufacturing hub

SUCCESSES

- Over 1,000 renewable energy projects since 2009
- Over 900 megawatts of installed renewable power
- For every $1 invested in energy efficiency, Ohio ratepayers save $3 on their utility bills

IF WE CAN CONTINUE TO INVEST…

- We can save Ohio ratepayers over $5 billion on deferred electricity costs
- We can create over 30,000 jobs in the energy efficiency sector
- We can continue to transform Ohio's manufacturing base
- We can bring over 1,300 MW of new wind power online

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