





Mid-year Review 2013

BEG/CEE Think Day, 7 June 2013

Agenda: Stress Testing

- What we thought in December
 - Mid-year analysis of outlooks
- Upstream resiliency
 - Sloan review
 - Producer costs
 - *IEA Tight Oil Workshop Recap*
- Midstream – preliminary results
 - Forever blowing bubbles?
 - *LNG 17 Recap*
- Electric power – Texas and the rest
 - Hot topic – electric power demand

Yo! John Galt!

“What Keeps Me Up at Night”

Highlights from our December 2012 annual meeting:

- Obviously, the economy (fiscal cliff, EU, Japan). But more specifically and for the long run, how will/would permanently higher levels of unemployment in the US reshape our society and our energy society
- Inability of Western democracies to deal with fiscal imbalances and perception that US is moving toward Europe model
- Totalitarian regimes and persistence...
- ...spread of tyranny...
- ...wealth clash...bribery...piracy...
- ... China growth outlook...
- Iran and related...
- Arab region...
- ...protectionism...
- Uncertainty – [are] things as good as people think?



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Yo! John Galt!

“What Keeps Me Up at Night”

Highlights from our December 2012 annual meeting:

- Problem is “waking up” – are we on the cusp of 1986 again, with supply overwhelming demand and oil price collapse? [OPEC producer angst]
- ...seriously in industry terms, it's how fast producers might turn back from oil to gas as [gas] prices go up [ergo, how high HH will have to rise to be attractive again for dry gas drilling]
- Tax!
- ...what to do with assets in saturated markets...
- Private equity and money flowing to resource plays [are] getting shrinking returns, costs are stubborn, risk for viability
- Revitalizing manufacturing...
- ...changes to DOE permitting of LNG export projects...
- Future for European gas consumption [coal]...



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Yo! John Galt!

“What Keeps Me Up at Night”

Highlights from our December 2012 annual meeting:

- Regulatory tsunami – effects on demand, supply, new bureaucracies, ability for industry to be as responsive as needed; energy policy and tendency to pick winners
- Divide between [environmental] and energy industry, including nuclear and impact of regs, failure of policy mechanisms for effective use of technology
- **Climate perceptions and shifting weather patterns...**
- **Sad state of science ed at all levels in US**
- Energy education, lack of global understanding of energy realities...
- ***Problems will be solved – [with] low gas price and shale recovery, manufacturing recovery, in light of Chinese fertility rate drop, labor cost, Europe – North America has bright future!***



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Al Boulos, 6 December 2012

1. Belief that America is or will be self-sufficient in energy
2. Belief that natural gas is the entire answer to USA energy needs
3. Failure of the industry to assume risks in deep water exploration for crude oil
4. Lack of understanding by environmentalists of the importance of oil and gas exploration, e.g., fracking and related exploration innovations
5. Ascendancy of environmental concerns over energy needs of USA



Al Boulos, long time advisor to CEE, friend and colleague to all of us, passed away 31 January 2013, leaving his wisdom behind.

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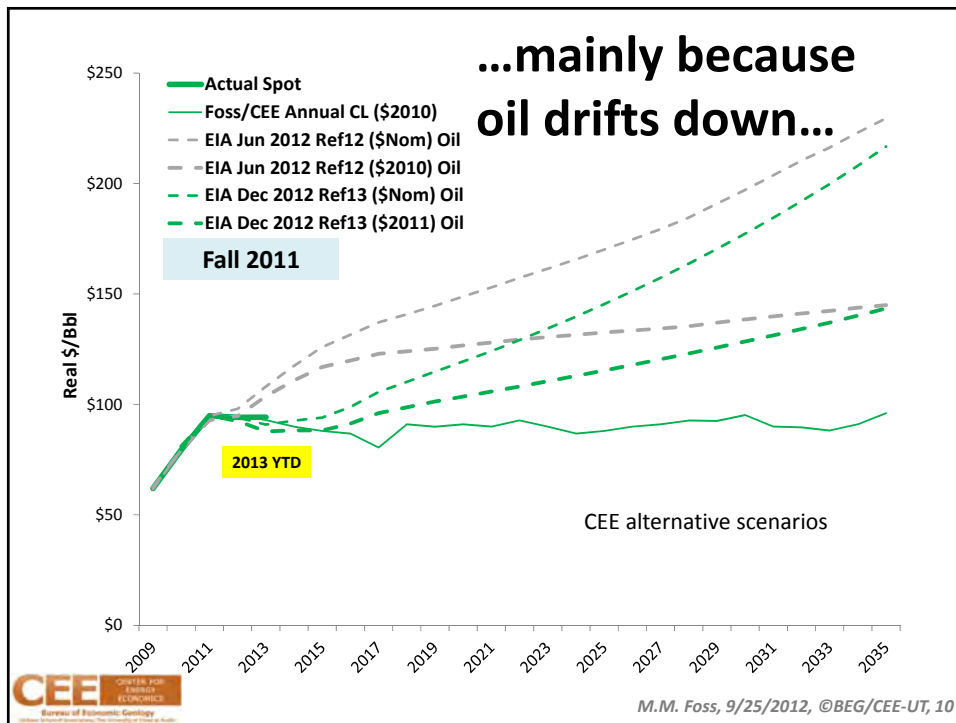
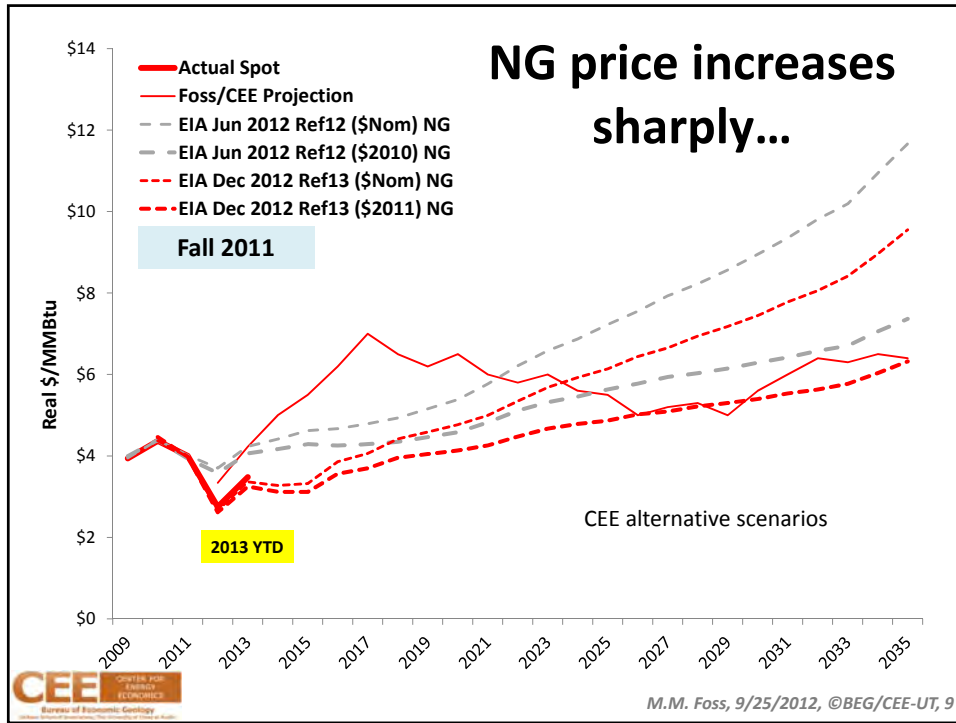
Al Boulos, cont.

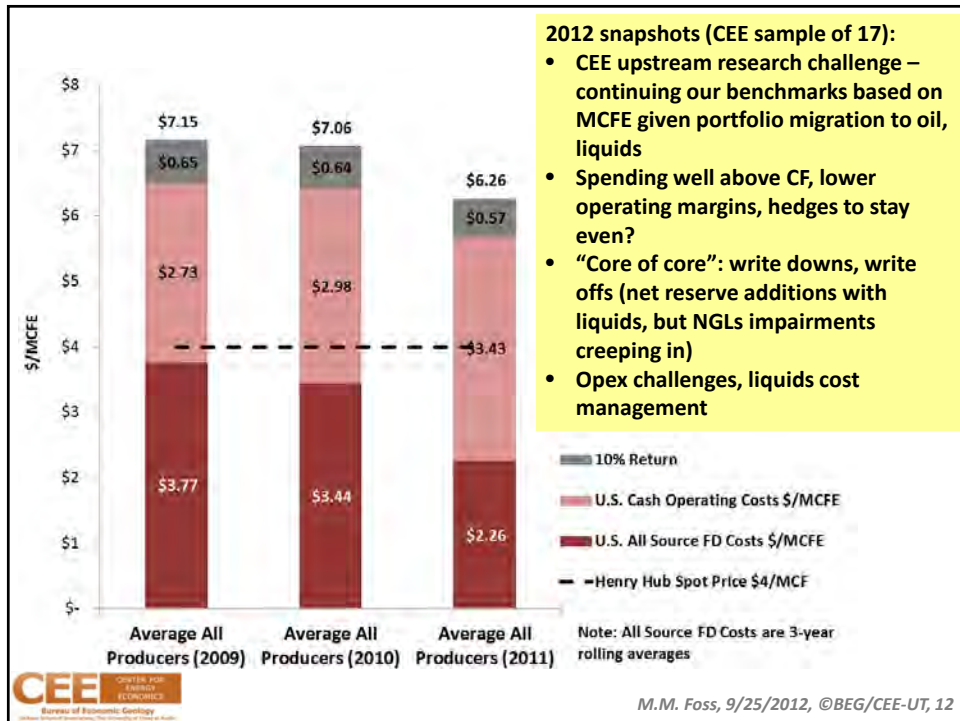
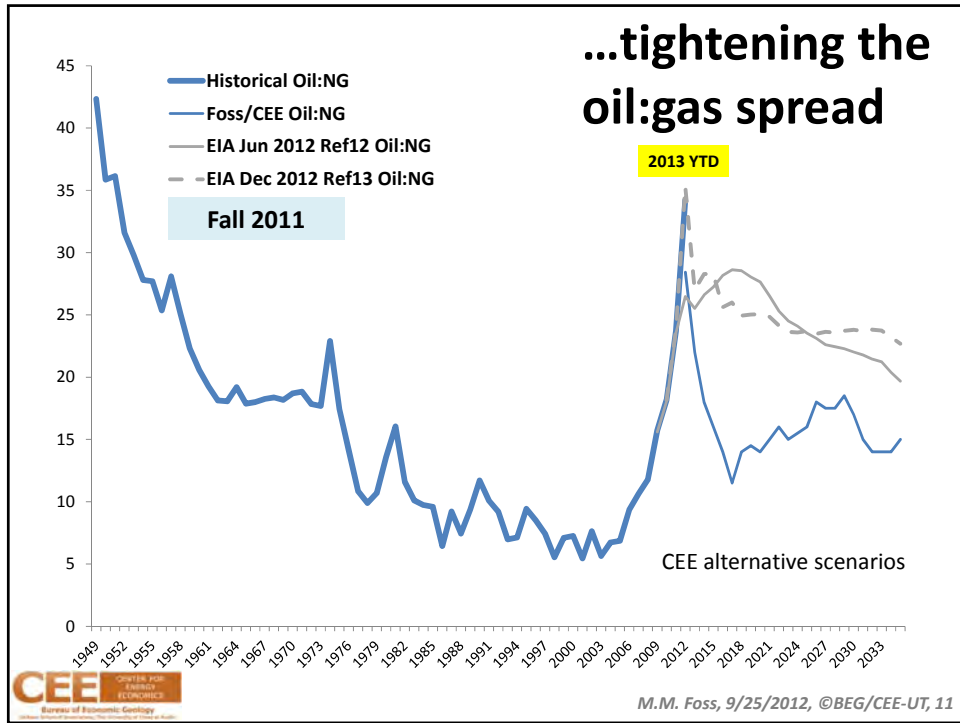
6. Political bashing of the oil and gas industry
7. Feeling of the Administration that it wants to punish the oil and gas industry
8. Oil and gas companies lessening budget expenditures for wildcat oil and gas exploration
9. Need for political settlements in the Middle East even in the face of difficult problems in the area
10. [there was no 10]

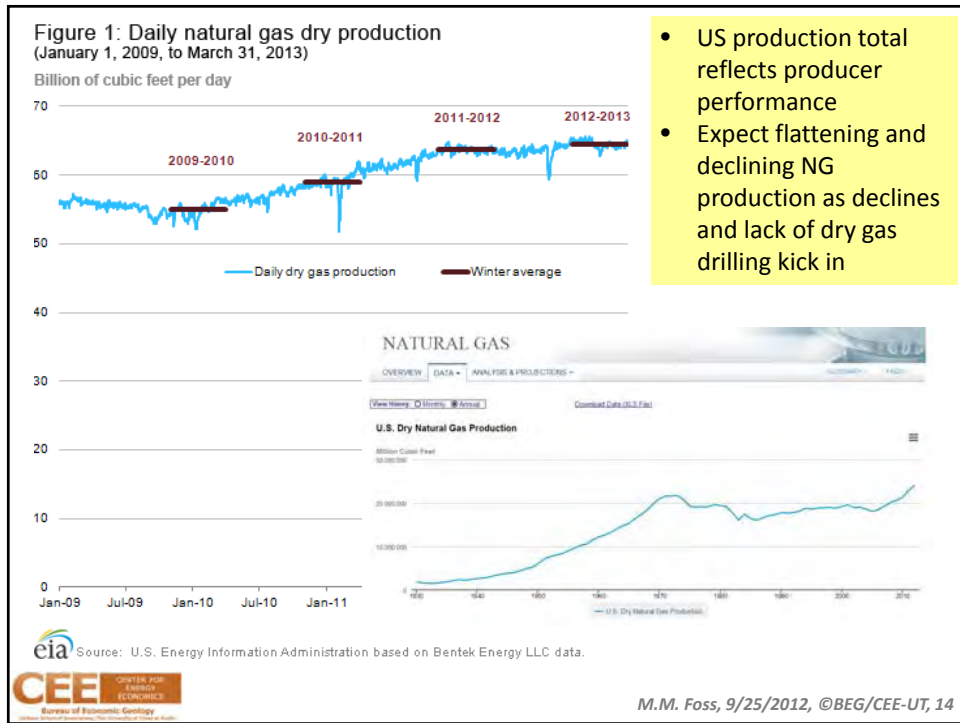
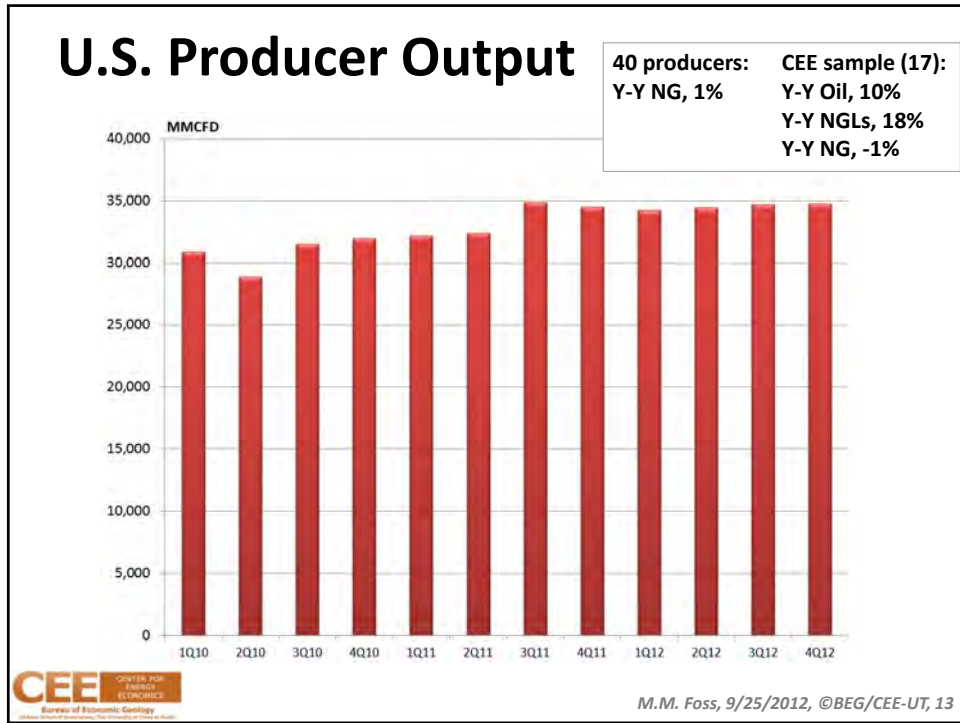
Mid-Year Clarity?

7 June additions, corrections, amplifications:

- HH is not attractive enough for dry gas drilling
- Capital market influences are overwhelming commodity fundamentals, especially for oil
- What are the risks of a hard landing for oil price, with what implications?







BEG/CEE Upstream Research

ENERGY TAX POLICY CHANGES



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A Long Debate

- Changes to the tax code that are most likely to impact investment include:
 - The repeal of the ability to expense Intangible Drilling costs
 - The repeal of percentage depletion allowances
 - The repeal of the Domestic Manufacturing Credit (just for oil and gas companies)
 - The repeal of the Last In First Out method of accounting



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Who's Saying What?

- Proponents of Tax Changes
 - Argue that these tax incentives cause disproportionate investment in the oil and gas industry when there are more efficient places for investment and that the current tax code [implicitly] favors independent companies over integrated companies
 - Cite the increase in government revenue that would result
 - Claim that since prices (for oil) are high, oil and gas companies do not need tax credits to keep production going and that production, consumption, and profits would not decline significantly as a result of tax changes
- Opponents of Tax Changes
 - Tax changes will cause many marginal and unconventional wells, which represent a substantial amount of domestic production to be shut off because internal rate of return will be too low
 - Reduced production will make the U.S. more dependent on foreign imports and thus reduce energy security
 - Higher costs will result in lost jobs
 - If commodity prices decline, tax changes will have even greater impact on investment and rate of return for oil and gas companies

“Springtime in Paris”

IEA TIGHT OIL WORKSHOP (30 APRIL 2013, PARIS)

IEA Tight Oil

Hi Michelle,

Thanks for your kind email. I hope you are well also.

I'm on holidays (like all Frenchs!) for most of May.

Sorry not in Paris. See you next time.

Kind regards,

T



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Key Takeaways

- North American tight oil production expected to flatten by 2020
 - Especially true in established basins (Eagle Ford, Bakken, Permian, Niobrara); decline curve, cost challenges
- Middle East continues to own the best real estate
 - Shale plays are in conventional field source rocks, giving the long term edge to Gulf players



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Key Takeaways, cont.

- Will a \$90 floor become a \$90 ceiling?
 - Broadly rejected; cost, capital market, other pressures
- How does China look?
 - The best basins compare reasonably well to Bakken, Eagle Ford (Ordos/Yanchang fm, Junggar, Sichuan) but many unknowns, tectonic interference, industry capacity
- Downstream forces?
 - Naptha-based capacity drops out?
 - Ethylene cost curve – US cheaper than some (Asia) more expensive than others (Middle East)



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CEE Midstream Research

ALL ABOUT MLPS



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All about costs...

LNG 17 HIGHLIGHTS

(17-20 APRIL 2013, HOUSTON)



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Panel: Role of LNG in Global Gas Demand

LNG 17 Black Swans

- Unconventional gas
- Methane hydrates
- World loses interest in climate change, allowing coal to reemerge
- Catastrophic safety incident in LNG industry
 - ***Safety is not improving despite clean record***
- Oil prices tank, causing fuel switching, which leads to oversupply of LNG
- Solar is a threat
- Global recession and deflation that hurts banks
 - ***[paraphrased] There is room for only one major project financing in US***
- International Conflict
- Long term oil increase and increased efficiency creates slower demand growth



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MEPs reject changes to carbon emissions freeze

15 April 2013 Last updated at 17:16

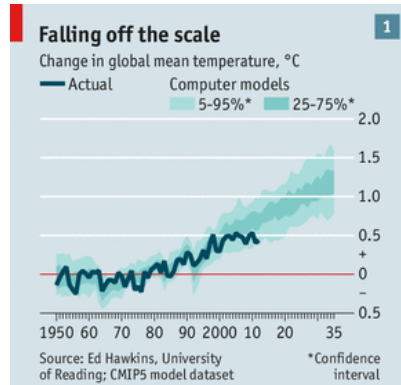
MEPs have rejected a proposal to back a change to laws on the trading of carbon emission quotas.

Dutch Green MEP Bas Eickhout said that many major corporations, including some large [energy companies](#), were supporting the Commission as "they see their innovation in green technology being killed in Europe".

He also criticised the fact that coal-fired [power](#) stations were now expanding in the EU and that coal was now the cheapest way to produce energy.



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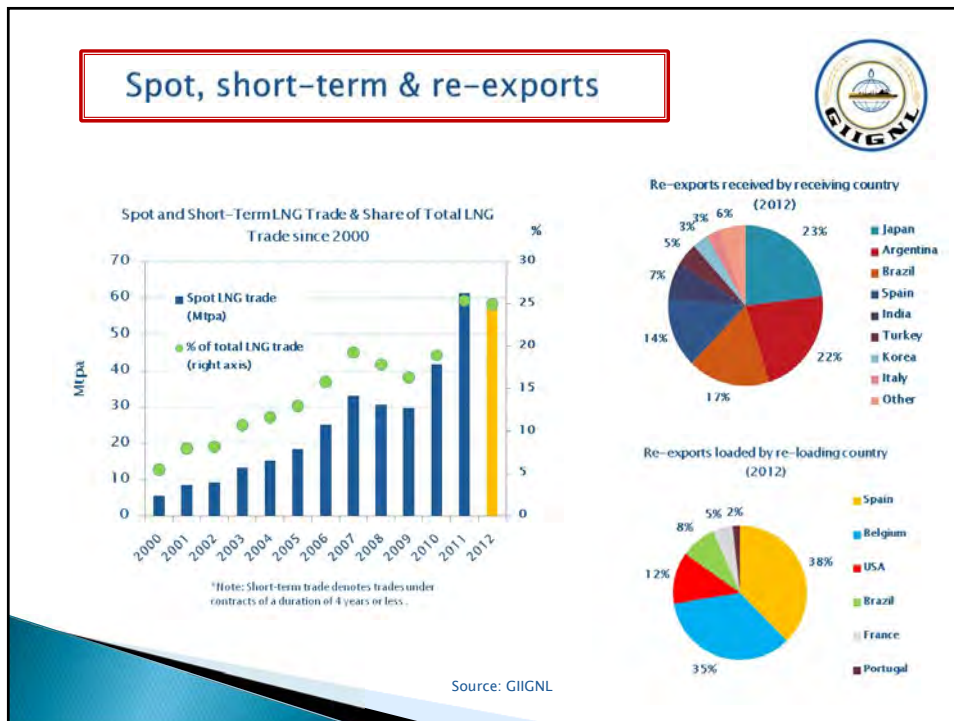
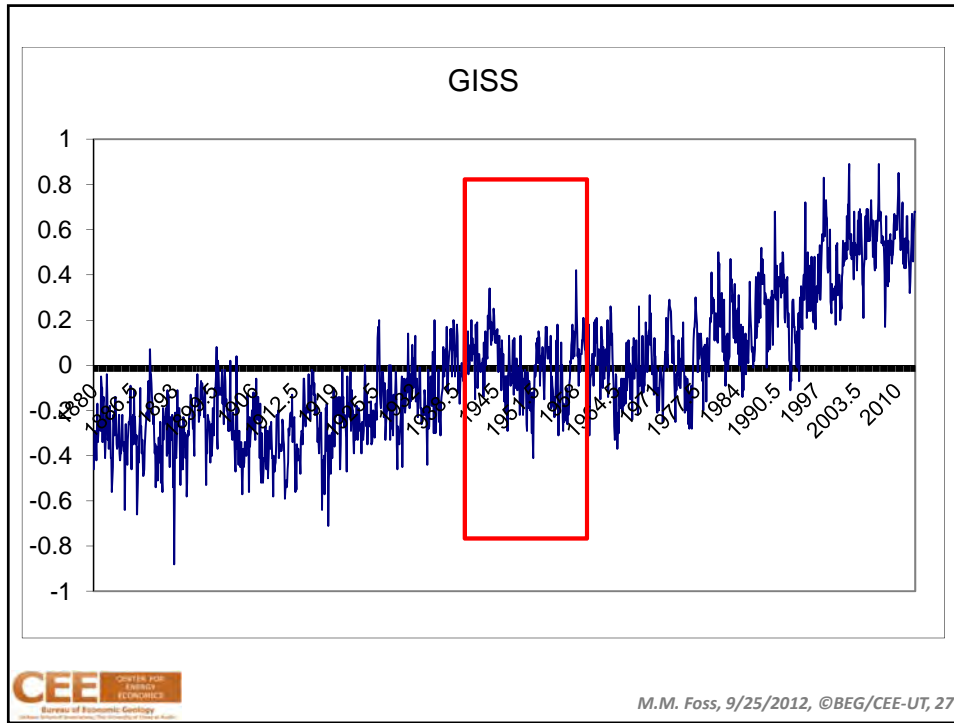


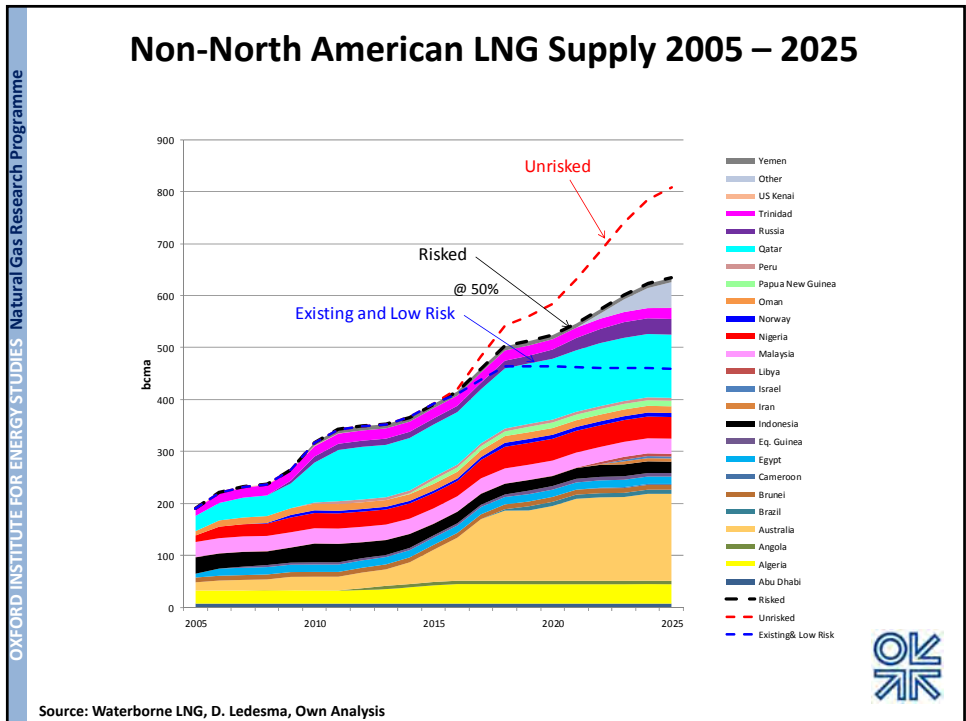
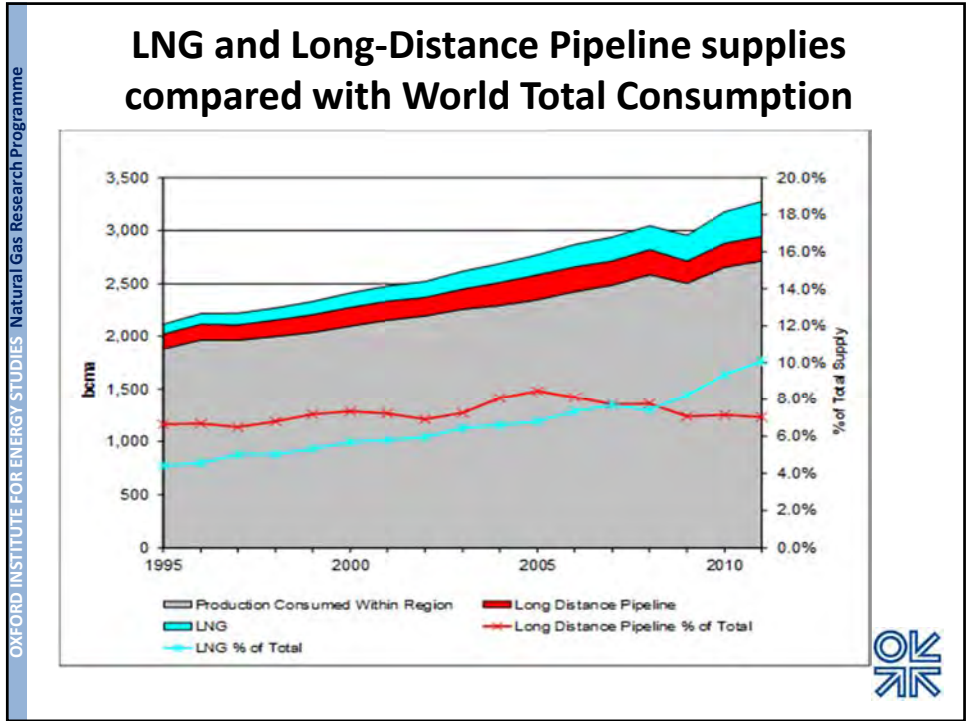
"Right now we're seeing the same kind of major events on a regional scale that occurred the last time the Pacific Ocean shifted its temperature phase from warm to cold when the Atlantic was in a warm phase, and globally, the Earth's temps have fallen about .05C in the last four years. The European winters also look very similar now to those in the early 1950s...cold conditions that existed in the Far East were also comparable. Alaska has once again turned much colder, just as it did then when the Pacific temperatures cooled and sea ice expanded."

- Joe Bastardi, meteorologist, [Forbes.com](#)



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Potential Commercial Issues for N. American LNG Projects

Many of the North American LNG Export Projects are Structured as Tolling Agreements. These create some commercial issues that differ from those typically found in the LNG industry, such as:

- **Development Funding --**
 - At risk
 - Consideration?
 - Equity
 - Tolling discount
- **Construction cost risk -- TSA signed before FID**
 - Who takes risk of cost escalation during development? During construction? Is there risk sharing? Exit ramp?
 - Greater issue for greenfields than for expansions



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Potential Commercial Issues for N. American LNG Projects (cont'd)

- **Gas Supply**
 - Tollers must obtain gas (SPA buyers need not)
 - Buy off grid, or dedicated source? (EPA issues?)
- **Terminal Force Majeure risk**
 - Customer continues to pay toll/fixed charge?
 - How long? Termination right?
- **Change in law or tax risk**
 - TSA customers may bear this risk; SPA buyers rarely do
- **Multi-users**
 - Inter-customer default/credit risk?
 - Are partial assignments permitted?
- **Pipeline**
 - Who owns the pipeline, is there capacity available, and will an open season be required?



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Potential Commercial Issues for N. American LNG Projects (cont'd)

- **What impact will these commercial and legal risks have on the LNG industry generally?**
 - Greater risks, including requirement to pre-fund development costs, may limit involvement to larger companies
 - Tolling structure means that customers must obtain their own natural gas supply, which may limit the pool of potential customers to those with US/Canada gas assets or trading capability
 - Fewer potential customers may mean fewer projects with creditworthy offtake and financeability



CEE Gas-Power Linkages

ELECTRIC POWER

