

# Energy, Environment & Technology Interim Committee

October 18, 2012

**Don Reading**  
Ben Johnson Associates



# Conventional Wisdom

## Natural Gas Price Forecast 2012, Avoid the "Widow Maker"

### Why Natural Gas Prices Will Continue to Drop

In the meantime, smart investors will stay out of the way of the Widow Maker. Expect natural gas prices to stay low for 2012 and beyond.

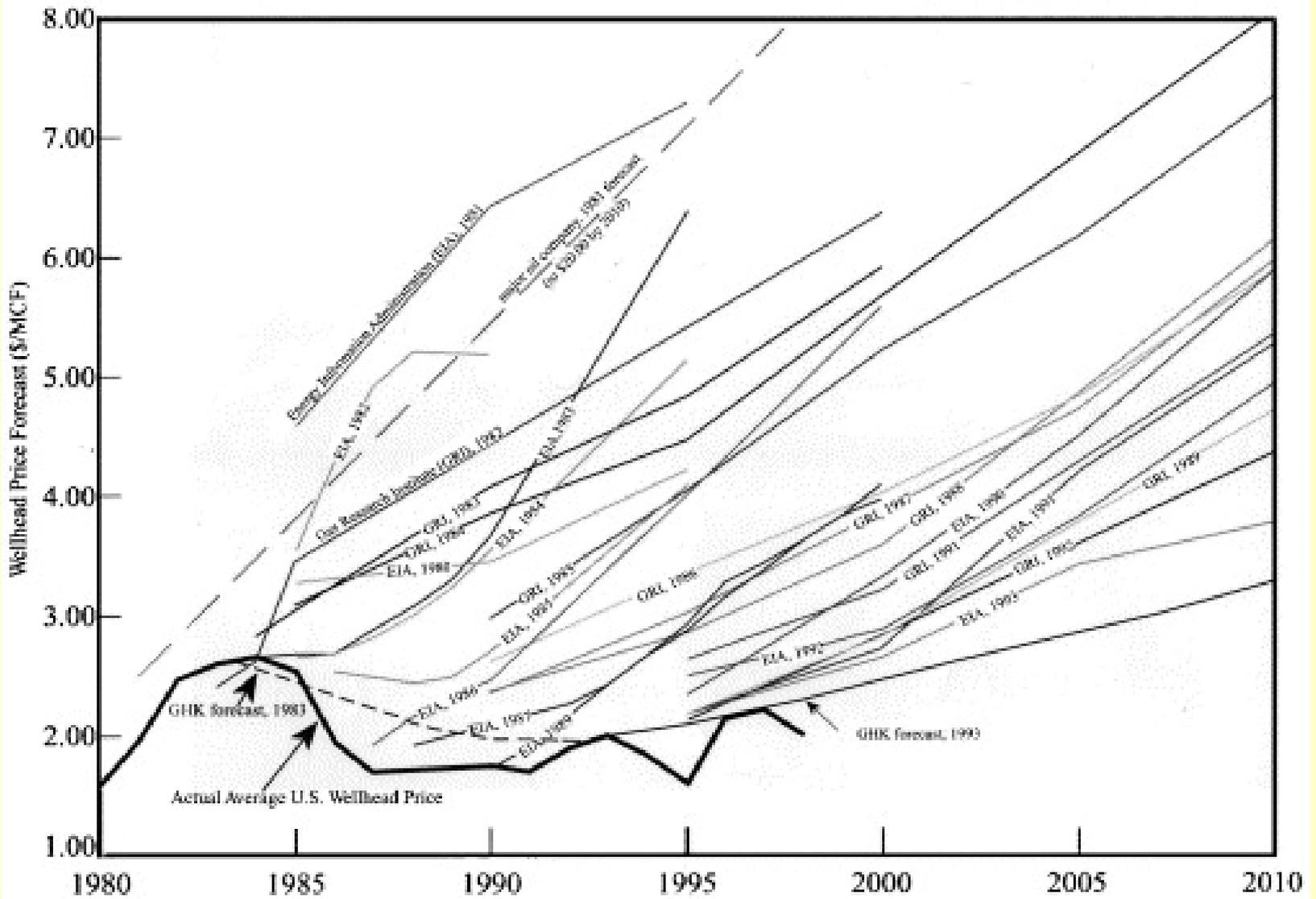
<http://moneymorning.com/2012/01/16/2012>

There is a glut of natural gas. Everybody knows that. There's so much of the latest multi stage hydraulic fracturing going on from New York State to Texas and all places in between, prices will be low forever.

<http://www.forbes.com/sites/richardfinger/2012/07/22/were-headed-to-8-00-natural-gas/>



# Predictions of Natural Gas Prices are Difficult



<http://www.sciencedirect.com/science/article/pii/S0360319901000799>

# Price Is a Function of Supply & Demand

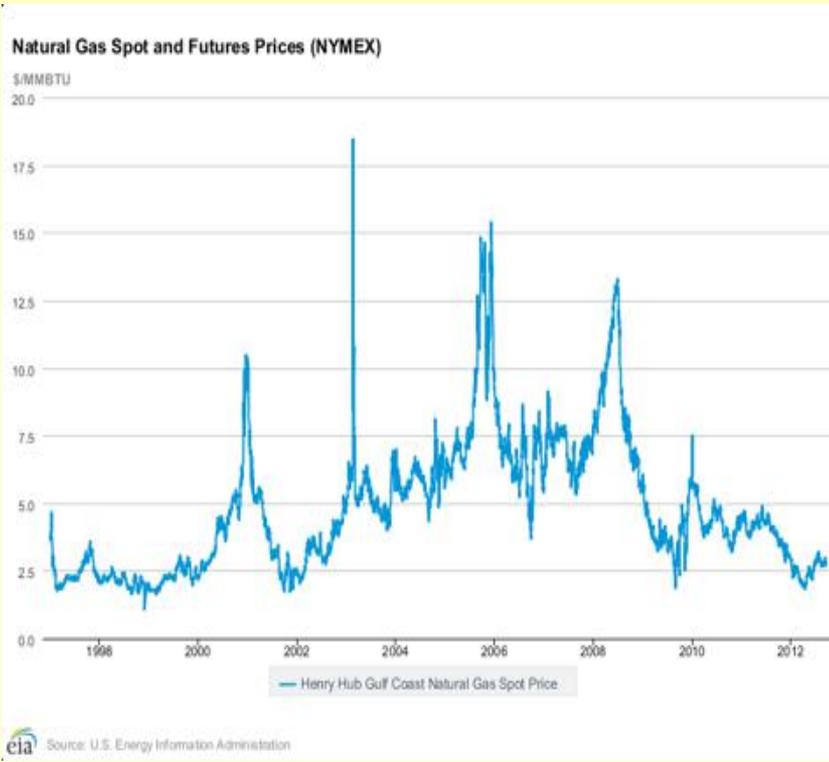
## ➤ Demand:

- LNG Exports
- Transportation (Trucking)
- Electric Generation Converting from Coal to Gas
- Other Uses

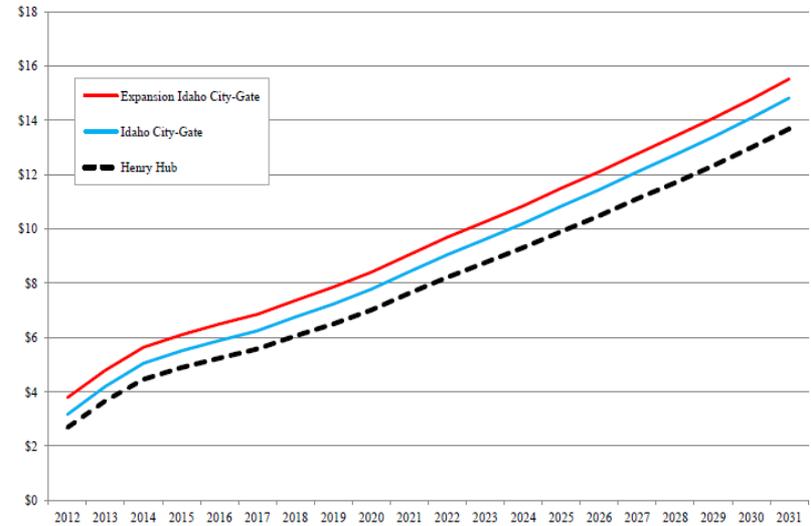
## ➤ Supply:

- Supply Price Relationship
- Potential Environmental Constraints
- Pipeline Capacity
- Water (Fracking)
  - ✓ Consumption
  - ✓ Quality

# The Freer the Market the More Volatile the Price!



Idaho City-Gate Prices  
Nominal Dollars



2013 Advisory Council Materials; Sept. 6, 2012 Meeting Materials

Natural Gas Historical & Forecast Prices:  
Historical 1996-2012; Forecast 2012-2031



## Demand: LNG Exports

### World LNG Estimated October 2012 Landed Prices



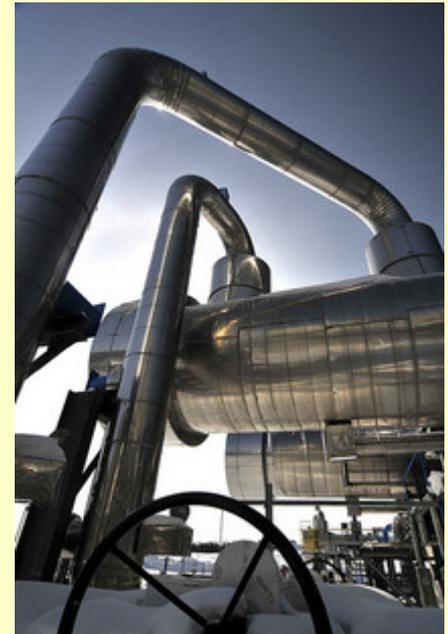
<http://seekingalpha.com/article/900261-driving-natural-gas-prices-part-1-exports>

## Demand: LNG Exports

U.S. edition of The Wall Street Journal, October 4, 2012

In a letter to Alaska Gov. Sean Parnell, [Exxon Mobil Corp.](#), [XOM +0.57%](#) [ConocoPhillips Corp.](#), [COP +1.11%](#) [BP BP.LN -1.10%](#) PLC and [TransCanada Corp.](#) [TRP.T +0.31%](#) said late Wednesday they have agreed on a plan to combine what were once two competing natural-gas pipeline projects destined for the continental U.S. into one 800-mile project aimed at overseas markets. The companies agreed in principle earlier this year to join forces on a single pipeline from Alaska's North Slope to a port on the southern coast for shipping gas to Asia.

[http://online.wsj.com/article/SB10000872396390444223104578036403362012318.html?mod=WSJ\\_hps\\_LEFTTopStories](http://online.wsj.com/article/SB10000872396390444223104578036403362012318.html?mod=WSJ_hps_LEFTTopStories)



### **Trucks Run on Natural Gas in Pickens Clean Energy Drive: Freight**

Made-in-America fuel source may soon be moving tractor-trailers across the U.S. Carriers like [Ryder System Inc. \(R\)](#) are buying long-haul trucks that run on natural gas, around \$1.50 a gallon cheaper than diesel. As adoption grows, [Clean Energy Fuels Corp. \(CLNE\)](#) and [Westport Innovations Inc. \(WPT\)](#) plan to profit from a marriage of technology and domestic energy that has the political blessing of President Barack Obama and [the financial backing of T. Boone Pickens](#). A Dillon Transport Inc. began moving Owens Corning Inc. freight last month using LNG trucks.

Dillon Transport Inc. via Bloomberg

AT&T, which operates one of the largest domestic fleets in America, recently announced it is purchasing approximately 8,000 vehicles over the next few years to replace gasoline and diesel vehicles with NGVs.

<http://www.pickensplan.com/ngv/>



## Demand: Transportation

Using natural gas could cut fuel costs by more than \$20,000 for a truck traveling a typical long-haul distance of 100,000 miles (161,000 kilometers) a year, according to JMP Securities LLC's Shawn Severson. Shares in Clean Energy and Westport are up at least 30 percent since the end of last year.

Clean Energy is tackling the so-called chicken-or-egg problem by building the fueling depots that natural gas-powered fleets require before they can proliferate. Such a network sets in motion part of a four-year-old plan by Pickens aimed at cutting the nation's fuel costs, reducing reliance on overseas energy and generating jobs.

Alex Kowalski - Feb 28, 2012



Demand: Transportation



<http://seekingalpha.com/article/902781-driving-natural-gas-prices-part-2-vehicle-fuel>

## Demand: Transportation

### **Allied Waste Services—Idaho**

Boise-based Allied Waste Services, a Republic Services company, has opened the first CNG fuel station with public access in Idaho. Allied Waste will use the new station to fuel its growing fleet of CNG refuse trucks. Allied contracts with the City of Boise to provide all solid waste and recycling services for the Greater Boise area. The new CNG station, designed and built for Allied Waste by Clean Energy, will open for public access early in 2010, making it possible for individuals, fleet operators and local governments to switch to CNG fuel.

<http://www.cleanenergyfuels.com/2009/11-30-09.html>



Natural gas for cars is now available to public in Boise

## Demand: Electric Generation Switching from Coal to Gas

### **North Carolina**

Progress Energy Carolinas has two projects under way to replace the retiring coal-fueled generating capacity with plants fueled by natural gas. A new 920-MW natural gas-fueled combined-cycle facility is under construction at the H.F. Lee Plant site near Goldsboro. That project, including a gas pipeline extension, is expected to begin commercial operation in January 2013.

[PR Newswire \(http://s.tt/1jcDQ\)](http://s.tt/1jcDQ)

### **Coal-Powered Colorado Undergoing a Natural Gas 'Revolution'**

When the new regulations are fully phased in, Colorado utilities are going to burn a lot less coal, converting some plants to burning natural gas, shutting others down altogether.

[http://www.pbs.org/newshour/bb/business/july-dec12/energy\\_08-08.html](http://www.pbs.org/newshour/bb/business/july-dec12/energy_08-08.html)

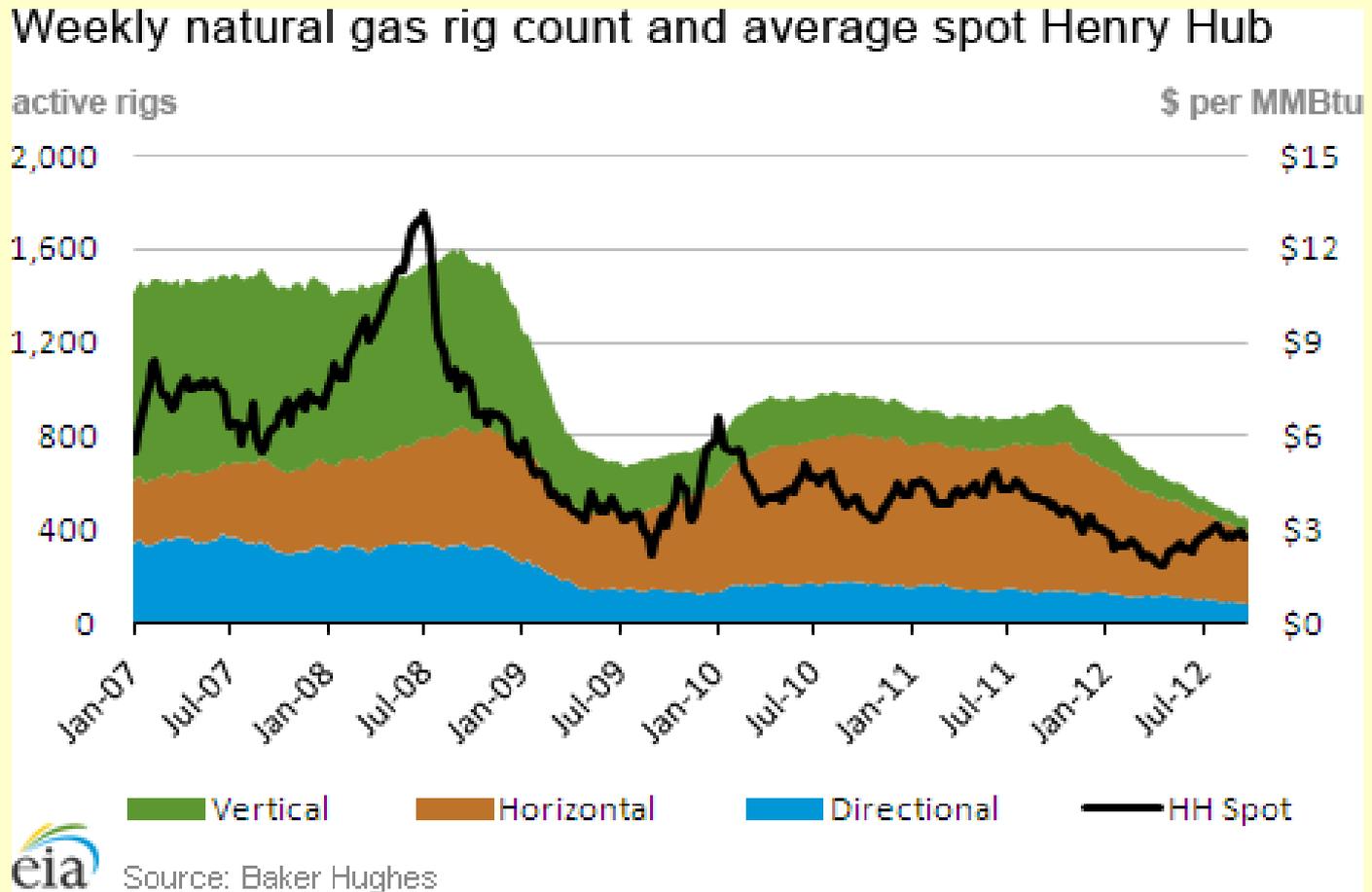


## Supply: Other Uses

As for gas lamps, it's safe to say attitudes have shifted yet again. Consider these enticements on Avista's webpage for customers to install outdoor gas lamps: "Add charm and value to your home through modern or traditional lighting." Other benefits noted: A gas lamp "won't create harsh shadows like flood lighting and won't attract insects," and "requires little maintenance and remains lit through electric power outages."

Clearing Up, Monday, October 15, 2012 No. 1565 n

## Supply: Supply Price Relationship



<http://www.eia.gov/naturalgas/weekly/>

# Supply: Potential Environmental Constraints



"I'm scared for my kids," says Simons (with boyfriend Jason Lumphere). They made sure their kids were out of the house when she demonstrated her water's flammability.

LIVING WITH 'FRACKING'

## WHERE THE WATER CATCHES FIRE

The profits and pitfalls of natural gas drilling are dividing Pennsylvanians BY NICOLE WEISENSEE EGAN

One day last February, the water out of Jodie Simons's kitchen faucet was running black. Simons called the Pennsylvania Department of Environmental Protection the next morning, and two days later an agent arrived, filled a bottle from her tap, took it outside and lit the water on fire. "She told us the methane levels were so high we should keep our windows open to make sure our house didn't explode," says Simons, a bartender in Monroeton, Pa.

A DEP investigation into the cause of her flammable water is ongoing, but Simons, 28, is one of many Pennsylvanians who believe a controversial method of extracting gas from shale in the area is behind the trouble. The month before the dark water incident, Chief Oil & Gas, a major gas driller, had finished tapping gas from rocks buried thousands of feet below a neighbor's yard, using a technique called hydraulic fracturing or "fracking," which involves forcing sand, dozens of chemicals—some of them

toxic—and water into shale to fracture it and release gas. Natural gas drilling is currently going on in 31 states, but nowhere are communities more divided than in Pennsylvania, where drilling is at a fever pitch. In December the EPA acknowledged a link between fracking and well-water pollution in Wyoming. Similar tests are under way in Pennsylvania. Experts say the gas reserves in the Marcellus Shale could "supply the whole country with natural gas for 20 years," says Penn State geoscientist Terry Engelder, whose research is credited with spurring the regional gas rush. Asked about Simons's ignitable water, he says, "A lot of people in northeastern Pennsylvania have been able to light faucets for a long time. Drilling has exacerbated the situation, but to insinuate that this is all a consequence of drilling is wrong."

## Supply: Pipeline Capacity

As natural gas production expands in new areas, additional natural gas processing and pipeline capacity may be needed; news reports indicate that a shortage of processing capacity in the northeast may be a bottleneck in the continuing development of the Marcellus shale.

<http://www.eia.gov/todayinenergy/detail.cfm?id=3090>



What does this mean for the two long-discussed projects – the MacKenzie Gas Project in northern Canada and the Alaskan Natural Gas Pipeline? Well, while their proponents may not be ready to admit it, it appears these projects have moved to the back burner. Shell announced July 15, 2011, that it plans to sell its share of the MacKenzie project as well as its other assets in the region.

This is a big blow to the project since Shell has long been a key partner. And this comes mere months after the [National Energy Board of Canada](#) issued a certificate for construction of the project. The remaining partners ([Imperial Oil](#), [ConocoPhillips](#) and [ExxonMobil](#)) have said no decision will be made on whether to move forward until at least the end of 2013.

<http://blog.enerdynamics.com/2011/07/27/has-the-need-for-remote-north-american-natural-gas-been-supplanted-by-shale-gas/>

## Supply: Water Consumption

Typically, a fracturing operation will draw about 4 million gallons of water during a one- or two-week period.

<http://www.newarkadvocate.com/article/20120928/OPINION02/209280317/-Fracking-uses-less-water-than-competition>

4 million gallons = 12 acre feet

Pennsylvania suspended water use for fracking in some parts of the state this spring due to drought.

<http://www.scientificamerican.com/article.cfm?id=how-can-we-cope-with-the-dirty-water-from-fracking-for-natural-gas-and-oil>



PHOTO: SPENDER PLANT/BETTY HANCOCK

## Supply: Water Quality

The nation's oil and gas wells produce at least nine billion liters of contaminated water per day, according to an Argonne National Laboratory report. And that is an underestimate of the amount of brine, fracking fluid and other contaminated water that flows back up a well along with the natural gas or oil, because it is based on incomplete data from state governments gathered in 2007.

<http://www.scientificamerican.com/article.cfm?id=how-can-we-cope-with-the-dirty-water-from-fracking-for-natural-gas-and-oil>

9 billion liters per day = 7,300 acre feet per day





**Don Reading**  
Ben Johnson Associates  
6070 Hill Road  
208.342.1700  
[dr.benjohnsonassociates.com](http://dr.benjohnsonassociates.com)

ECONOMIC  
RESEARCH  
AND  
ANALYSIS