**Observation 1 is the status quo –**

***Obama’s re-election guarantees over-regulation of natural gas production --- this dooms the economy and makes warming inevitable***

**D’Angelo, 12/10**/12 (Wayne D’Angelo, special counsel in the Washington office of Kelley Drye & Warren, counsels clients on environmental and energy matters, He has experience in all aspects of environmental and energy law and focuses on issues surrounding hydraulic fracturing, conventional and nonconventional fuels, resource extraction, greenhouse gas regulation, and stationary and mobile-source issues under the Clean Air Act. This commentary previously appeared in Kelley Drye’s Fracking Insider blog.) Thompson Reuters News & Insight, WESTLAW JOURNAL ENVIRONMENTAL, Hydraulic fracturing regulation in President Obama’s second term, <http://newsandinsight.thomsonreuters.com/Legal/Insight/2012/12_-_December/Hydraulic_fracturing_regulation_in_President_Obama%E2%80%99s_second_term/>, jj

Before we even finished counting the votes in the 2012 presidential election, **political pundits, environmental and energy practitioners and**, in some ways, even **Wall Street traders, offered** their **insights on how** President **Obama would regulate** the **energy** industry in the next four years. Such an exercise is perilously speculative, particularly when applied emerging segments of the industry, such as hydraulic fracturing and horizontal drilling. Nonetheless, **the general consensus is that the administration will take a heavy hand, that long-shelved initiatives will take on new life and that the hydrocarbon extraction industry should brace for punitive measures.**

While we absolutely agree that **the pace of regulatory activity on hydraulic fracturing will hasten in Obama’s second term**, we do not share the sentiment that this administration is out to destroy America’s domestic unconventional oil and gas industry. We hold the view that **this administration will** try to use existing statutory authority to **further regulate hydraulic fracturing on a federal level,** but will not purposefully punish the industry with regulations aimed at killing the hydraulic fracturing industry. That being said, **this administration and the energy industry has, at times, had trouble working together**, and there may be some residual bad blood over a contentious election where energy issues were front and center. **If this administration attempted to proceed with federal regulation of hydraulic fracturing without meaningful input from the energy industry, there is a very real chance of a regulatory overreach that could deal a detrimental blow to a critical domestic industry.**

Here is the context that informs Fracking Insider’s view of federal hydraulic fracturing regulation in Obama’s second term:

IT IS ENTIRELY UP TO THE WHITE HOUSE

Democrats held the Senate, and Republicans continue to control the House of Representatives. There will be some musical chairs among key committees with jurisdiction over hydraulic fracturing, but there is no indication that partisan gridlock will thaw in the coming years, particularly on a hot button issue like energy. While there will be hydraulic fracturing legislation introduced in both chambers, the White House is not banking on a meaningful hydraulic fracturing bill reaching the president’s desk.

Absent new statutory authority, **this administration is going to inventory the regulatory authority it has within existing environmental statutes and figure how to promulgate rules under those statutes.** The Obama Environmental Protection Agency did the same thing with climate change in the first term. Once the administration satisfied itself that the divided legislature would not pass a climate change bill, it promulgated greenhouse gas, or GHG, regulations under the Clean Air Act. Even the administration acknowledged that the CAA was a poor tool to regulate GHGs and that the CAA would need to be modified administratively to accommodate these ubiquitous gases, but they shoehorned GHGs into the CAA anyhow and, so far, courts have allowed it. We suspect that experience is fresh in this administration’s mind and that the regulatory shoehorn is primed for action.

THE PETITIONS FOR RULEMAKING AND ONGOING STUDIES SAY MORE ABOUT THIS ADMINISTRATION’S PLANS FOR HYDRAULIC FRACTURING REGULATION THAN THE “DELAYED RULES.”

Much has been made about a backlog of environmental regulations that the administration shelved in the months leading up to the election and that now will be unleashed upon industry. While true that this administration postponed a number of environmental regulations that could be seen as hurting jobs, energy prices and the fledgling economic recovery, none of those are precisely directed at hydraulic fracturing. Certainly, industry should and will engage in issues such as ozone and particulate matter standards, the Boiler MACT, sulfur standards for gasoline, and New Source Performance Standards for power plants and refineries, but it should not forget about the environmental groups’ petitions for hydraulic fracturing rulemaking that have similarly (but less conspicuously) been delayed.

Those petitions include:

• Petition to regulate hydraulic fracturing fluids under the Toxic Substances Control Act (partially granted already).

• Petition to apply the Resource Conservation and Recovery Act to drilling fluids and produced waters.

• Petition to require Toxic Release Inventory reporting for hydraulic fracturing operations under the Emergency Planning and Community Right to Know Act.

• Request for regulatory determination over whether biocides in hydraulic fracturing fluid should be regulated under the Federal Insecticide, Fungicide and Rodenticide Act.

For an administration that has resigned itself to congressional inaction, these petitions provide avenues (albeit flawed) for shoehorning new regulatory authority into old statutes.

**If petition-driven regulation is promulgated, it may also accompany Clean Water Act regulation**. The EPA has been studying the impact of hydraulic fracturing on water since 2010. Draft findings are due in early 2013 with a final report due in 2014. Regardless of the draft or final findings, many administration officials predisposed to increased regulation of hydraulic fracturing under the CWA will point to this study as a justification for further regulation. On top of the administration’s 2012 initiatives to increase regulation under the CAA, the Safe Drinking Water Act, and on federal land, it is easy to see how this “all-points/all-media” approach to hydraulic fracturing regulation has convinced many that the **Obama administration is out to dismantle the industry.**

PRESIDENT OBAMA NEEDS HYDRAULIC FRACTURING

**Despite this administration’s regulatory propensities and the apparent attempt to federally regulate hydraulic fracturing through a multimedia, multi-statute approach, we believe that this administration needs a thriving domestic natural industry and the hydraulic fracturing that makes such an industry possible.**

**From an economic perspective, America is still in trouble, and the energy industry provides a rare bright spot on an otherwise gloomy economy**. **Obama’s second term was made possible by millions of union workers who rely on a thriving domestic energy industry for paychecks, and by voters in Ohio and Pennsylvania where hydraulic fracturing breathed life into state treasuries and local economies.** While term limits permit the president to decouple himself from these constituencies, history will judge this president on how he managed our nation’s economic recovery — and **recovery is impossible without a thriving domestic energy industry**.

**Obama is undoubtedly looking at his legacy from an environmental perspective as well**. His election night reference to the “destructive power of a warming planet” reveals that **he sees his response to climate change as a key component of his environmental legacy**. This administration has aggressively pursued GHG regulation and fuel efficiency standards, but such **efforts would be meaningless unless he can show a reduction in GHG emissions**. **Such reductions are not possible without meaningfully embracing natural gas**. The Obama administration may not love hydraulic fracturing, but it likes natural gas a whole lot more than coal because natural gas combustion produces half the carbon dioxide emissions of coal. This administration’s heavy-handed regulation of the coal and coal-fired power industries reflects that fact.

We believe that Obama understands that the fate of his economic and environmental legacy is intertwined with the energy industry and hydraulic fracturing. **Whether that understanding will be sufficient to reign in anti-hydrocarbon elements of his administration and take a more restrained approach to regulation remains unclear**. What is clear, however, is that **this administration stands no chance of finding an appropriate level of regulation without working closely with industry.** Unless Obama reaches out it the energy industry in a meaningful way, **he will run the risk of allowing his regulators to run right past the breaking point of a healthy domestic energy and hydraulic fracturing industry.**

***Federal fracking restrictions are overlapping, impose unnecessary costs and stifle investment, destroying the gas industry***

**Hunt ‘12**

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**Federal Rules Threaten to Suffocate the Fracking Industry**

In Medieval times one form of dispatching miscreants was called “pressing”. The punishment involved piling stones on top of the offender one at a time slowly suffocating him from the weight on his chest. Not only did this rid the kingdom of troublemakers but it had a ”crucify him” like effect on the gathered witnesses lest they forget who is in charge. Fast forward and today we are seeing Federal agency after agency pressing forward with new rules on hydraulic fracturing: DOI BLM Fracking Rule. **The Interior Department proposed new rules for hydraulic fracturing on lands controlled by the** Bureau of Land Management (**BLM**). (May 4th – 60 day comment period). **The proposed rules impose new well-bore integrity assurance requirements to verify that fluids used do not escape during fracturing operations. Public disclosure of chemicals used during hydraulic fracturing are required to be posted after fracturing operations is done. Oil and gas operators would also be required to have a water management plan for fracturing fluids that flow back to the surface.** EPA Safe Drinking Water Fracking Rule. US EPA proposed rules on diesel fuel use in hydraulic fracturing under the Safe Drinking Water Act covering both federal and private lands. (May 4th – 60 day comment period) EPA NSPS Rule. **US EPA Administrator** Lisa **Jackson signed final** New Source Performance Standards **(NSPS). Under this rule EPA will for the first time regulate air emissions from natural gas wells using hydraulic fracturing**. (April 17 – final NSPS rule at 40 C.F.R. Part 60, Subpart OOOO) EPA NESHAPs. National Emission Standards for Hazardous Air Pollutants (**NESHAPs) covers emission sources associated with exploration, production, processing, and transportation of oil and natural gas for upstream and midstream oil and gas industries**. (April 17 – Final Rule at 40 C.F.R. Subparts HH (covering the oil and natural gas production sector) and HHH (covering the natural gas transmission and storage). Interagency Rules Working Group. President **Obama** **issued an executive order** April 17th **creating an interagency working group to coordinate policy efforts among the federal agencies that oversee different components of the “development of unconventional domestic natural gas resources.”** My purpose here is not to review the details of each of these proposed rules. But **when the President creates a committee to choreograph the rule making process across Federal agencies you can be assured that “pressing” is about to begin.** Why? **To date hydraulic fracturing has been regulated largely by the states**. **This made sense since it was used in a few states where there was a growing body of experience with the players and techniques**. **State regulation has a vastly different character to it since there has generally been a much better balancing of interests between environmental and economic concerns in protecting the public interest.** So North Dakota, for example, can adopt rules and supervise field operations to protect public health and safety while also assuring that the state’s interest in economic growth is not harmed by irresponsible operators. **For more than twenty years this approach has worked without any significant environmental or other problems. Even US EPA Administrator** Lisa **Jackson was forced to admit there is very little evidence of environmental problems with fracking to warrant Federal intervention**. **That was music to the ears of the states, but it does not appear it will save them from a wave of new Federal regulation over fracking that almost surely will duplicate, preempt or interfere with the states.** On Federal lands the issue is different since much less drilling has been permitted. Federal rules on federal lands are more wrapped up in the politics environmental issues especially in an election year. So what should we make of this?

• Being FOR domestic energy production while being AGAINST it. The Obama Administration is trying to have it both ways in an election year. It must seem responsive to its environmental base that opposes hydraulic fracturing because it leads to more domestic energy production and use of fossil fuels. Yet it must seem responsive to labor and business interests and the public perception that domestic energy production of oil and gas is good for job creation, good for the economy and good for our national security.

• The Law of Creeping Federal Preemption. **The Federal Government is engaging in an age old turf war with the states using Federal rules to progressively lay the ground work for arguing that the Federal rules preempt state rules in conflict**. The rules proposed and adopted so far play this game with precision narrowly citing Federal statutory authority yet being generously flexible in their application and implementation to avoid raising too much fuss especially before the election. But **make no mistake this battle of Feds vs States is coming.**

• The Death of a Thousand Fracking Rules. **For operators, investors, and the rest of the oil and gas industry** just trying to do their jobs, make a living and do some good by developing America’s domestic energy potential, **new Federal rules are a mixed blessing**. On the one hand **the uncertainty about future rules imposes enormous unquantifiable risk** in a politically charged election year and beyond. On the other hand, **the piling on of Federal rules on top of state rules drives up the costs and can undermine the economics of many projects**. **The worst fear is that rulemaking will be used at the Federal level to achieve a policy outcome that likely cannot be won in Congress.**

The growth of domestic energy production from North America’s unconventional oil and gas potential is remaking our future and our economy. The decisions facing the country revolve around how to responsibly develop that potential for our economic revival and growth while balancing it against our broadly held desire to protect the environment for our children and grandchildren. Rules that clarify ambiguities and promote best practices are good for the industry and good for the country. **Rules that drive up the costs, delay operations, create conflict and confusion are, in fact, the modern version of “pressing”.**

***The EPA air emissions rule alone will collapse the industry***

**ARI 12** – Advanced Resources International Inc. report for the American Petroleum Institute, "Estimate of Impacts of EPA Proposals to Reduce Air Emissions from Hydraulic Fracturing Operations,"www.api.org/~/media/Files/Policy/Hydraulic\_Fracturing/NSPS-OG-ARI-Impacts-of-EPA-Air-Rules-Final-Report.ashx

Depending on the REC-Set Use Rate scenario assumed, **the following impacts** from base case levels **are projected in the first 4 years after the requirements go into effect** (through 2015):¶ • Overall **well drilling for** unconventional resources producing natural **gas** over 2012 - 2015 **would be reduced by 31% to 52%,** amounting to reductions in drilling ranging from 12,700 to 21,400 wells.¶ • 5.8 to **7.0 quadrillion Btu** (Quads) **of otherwise economic** unconventional natural **gas would not be developed and produced by 2015, a 9% to 11% reduction**.¶ • 1.0 to **1.8 billion barrels of otherwise economic unconventional liquids would not be developed and produced by 2015, a 21% to 37% reduction**.¶ • Federal royalties of $7.0 to $8.5 billion that would otherwise be collected would not be paid in the first 4 years after the requirements go into effect.¶ • State revenues from severance taxes amounting to $1.9 to $2.3 billion would be delayed beyond the first 4 years after the requirements go into effect.¶ Under either scenario of REC equipment availability, **a significant slowdown in unconventional resource development would occur, resulting in less reserve additions, less production, lower royalties to the Federal government** and private landowners, and lower severance tax payments to state governments. The **delays in drilling results in delays in production, which result in the delays in the economic benefits** associated with that production. This analysis did not attempt to estimate lost jobs associated with reduced drilling, oil and gas supply services, and indirect employment.

***There’s a glut of natural gas now, but restrictions make prices volatile despite this***

**Faulkner ‘12**

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August 13, 2012, Breitling Oil & Gas, “Contemplating the Natural Gas Market: Start with the Fracking Facts” <http://www.breitlingoilandgas.com/contemplating-the-natural-gas-market-start-with-the-fracking-facts/>, jj

Regardless, the sad truth is that the facts have done little to quiet the hue and cry over fracking, so **it behooves us to look at the potential regulatory fallout of this controversy and how it could impact the natural gas market**. **It’s hard to overstate the importance of fracking to the natural gas industry—it is, quite simply, the only method that gives us access to US reserves today. There are no more domestic reserves accessible via old fashioned vertical drill methods, and there haven’t been for decades.** So, a big question on my mind when I’m making investment decisions is whether oil companies such as Atlas Energy (NYSE: ATLS), Continental Resources (NYSE: CLR), Chesapeake Energy (NYSE: CHK), Range Resource (NYSE: RRC), Southwestern Energy (NYSE: SWN), Carrizo Oil & Gas (NASDAQ: CRZO) and many others will be able to reach the reserves they’ve already included in their investor reports. **Over-regulation to the point that the cost of drilling outweighs the potential profit** or an outright moratorium **on fracking would wreck havoc on those company projections**. This is somewhat similar to what happened recently with the Marcellus shale, when the USGS lowered its natural gas reserve estimates by 60%. In the case of the restated Marcellus estimates, the result was an increase on the commodity price of natural gas. Counterbalanced by the oversupply in the market, the price increase was short-lived, but **if US reserves are completely cut off by unreasonable regulation, the supply glut won’t be enough to keep the price down.** The likelihood of increased regulation is uncertain. After the EPA concluded in 2004 that there was no credible evidence of environmental impacts from fracking operations and Congress exempted fracking from federal drinking water regulations in 2005, the issue was re-ignited by Josh Fox’s hyperbolic and inaccurate “Gasland” documentary. Riding the momentum of renewed notoriety and heightened media and public interest, fracking opponents successfully lobbied the EPA to once again study the environmental impacts and numerous bills have since been introduced to increase fracking regulation. Many states have opposed further federal regulation, however, and local municipalities have moved to regulate the practice within their own jurisdictions. Attempts to ban the practice have already been met with constitutional challenges. Most recently, President **Obama issued an executive order establishing an inter-agency working group to coordinate the 13 federal agencies studying and considering regulating the natural gas industry.** At the same time, **this country is deeply invested** – financially, politically, and emotionally **– in finding and using cleaner energy alternatives, and natural gas is among the cleanest and most cost-effective**. According to the EPA, natural gas produces half as much carbon dioxide as coal when burned for power generation, for example. Nuclear energy meets current standards for carbon emissions, but power generated through nuclear energy is 4 to 5 times more expensive than power generated by natural gas. And, though **natural gas-powered vehicles are still in their infancy**, I can’t recall ever seeing a market-ready nuclear-powered car. (Okay, Cadillac introduced a really futuristic-looking, sleek beauty at the 2009 Chicago Auto Show, but it didn’t actually have a working reactor. Truly a concept car, it was designed based on the theoretic possibility of using a thorium-fueled reactor. With natural gas-powered vehicles already on the road and in the production line, I think we have to give this green advancement to natural gas.) Naturally, I’m biased in favor of, and hoping and believing, that **a reasonable compromise can be reached that will allow operators to access domestic reserves in a cost-effective manner that meets government standards sufficient to protect the environment and the public**. And I think **we’ll get to that compromise by remembering to stay focused on the facts and paying attention to the actual standards already in place. In the meantime, this volatility over fracking regulation will continue to contribute to the volatility of natural gas commodity prices.**

***Investment helps companies survive the glut in the short term.***

**Kientz ‘12**

Robert has been an investor for many years and has 7 years experience working as a corporate auditor and has 13 years corporate working experience. Robert earned his Series 6, 63, and 7 licenses 10 years ago while working as a broker dealer for a large, multinational company. In addition, Robert earned a Series 3 options license in 2009 while working for a forex broker. Robert formed a real estate property management firm in 2000 to assist property owners in the North Texas area to increase their profits by providing high quality, best of market rentals for their tenants. Since founding, Robert has reduced vacancies by an average of 2 months per year per property, and increased cash flow by increasing rental demand and therefore timely rent payments. By renovating existing rental inventory to best of market and expanding property marketing techniques, the real estate company locates the best tenants and keeps revenues consistent in a tough real estate market. After working in finance and corporate audit for many years, Robert retired to become a full time property manager, real estate investor, trader, and author. Robert started the Drop Shadow website (http://www.thedropshadow.com) in 2010. As a former corporate auditor, Robert possesses a unique view into business operations and controls and how they affect and interact with the strategic business plans of the company. The experience in Audit taught Robert various best of business practices, whose application to his investment strategies increased revenues and efficiency while reducing costly overhead.

8-28, Forex Pros, Investing In Natural Gas, Part 2, <http://www.forexpros.com/analysis/investing-in-natural-gas,-part-2-134421>, jj

Like **many** of the ***n*atural-*g*as companies** engaged in build-out phases, Golar **has a short term cash crunch that will need to be financed**, **which could put pressure on profits and share price near term**. In addition, **the company faces pressure from currency conversions and floating interest rates that may reduce margins in the wake of current global economic conditions.**

***And, regulatory certainty is key to exports.***

**Ebinger et. al ‘12**

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Energy Security Initiative @ Brookings, Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas, May, <http://www.brookings.edu/~/media/research/files/papers/2012/1/natural%20gas%20ebinger/natural_gas_ebinger.pdf>, jj

Environment, Regulations, and the Feasibility of LNG Exports While several studies are ongoing into the effects of shale gas production on the environment, there has been no conclusive evidence found to date that links the practice of fracking to ground water contamination or increased seismic activity. **As long as the current regulatory environment re- mains, shale gas development is likely to continue to produce the volumes that will make LNG exports feasible.** However, **a change in the regulatory landscape that imposes additional costs on producers could make marginal shale gas prospects uneconomic, reducing the size of the economically recoverable resource, thereby negatively affecting the feasibility of LNG exports**. Conversely, well developed regulations, possibly based on sustainable best practice, could provide benefit to the public, the environment and industry. The recent announcement by the Obama Administration— in which it allocated $45 million to an interagency research and development program between the Department of Energy, Interior, and the EPA to identify ways to reduce the environmental impact of shale gas production—suggests that the Administration supports the sustainable development of shale gas resources.

***This keeps the industry healthy long term***

**Passwaters**, 6/18/20**12** (Mark, SNL Energy Gas Utility Week, “Shell executive: LNG exports to Asia hold key to breaking production glut, LexisNexis, ts)

HIGHLIGHT: **LNG exports to Asia could provide a way out of an oversupplied market for North America**, according to the director of Royal Dutch Shell plc's upstream division. LNG exports to Asia could provide a way out of an oversupplied market for North America, the director of Royal Dutch Shell plc's upstream division said in a recent speech. Speaking June 7 to the Canadian American Business Council in Washington, D.C., Marvin Odum said **the growing global demand for energy is being paced by Asia, with China leading the way. "China has said it will more than double natural gas as a percentage share of its primary energy use by 2015. It could triple by 2020**," he said. "We at Shell see China driving 50% of the world's growth in natural gas demand over that same period of time." Odum said the **increasing Asian demand for energy could be the boost gas producers**, primarily in western Canada, **need to survive the current supply glut in the U.S.** and Canada. "**How can we create more value for that supply? By going west**," he said. "**LNG exports to Asia can open a market for North America** - and especially Canada - **worth billions of dollars**."

**Thus, the plan:**

***The United States federal government should substantially reduce restrictions on natural gas production in the United States by repealing the Environmental Protection Agency’s New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews for natural gas production. The United States federal government should issue a moratorium on further federal restrictions on natural gas production in the United States.***

**Advantage 1 is Coal**

***US CO2 emissions are dropping rapidly as natural gas replaces coal --- but restrictions will reverse this***

**Zakaria, 10-25** (Fareed, PhD Poli Sci @ Harvard, Zakaria, Editor of Newsweek, The Nation (AsiaNet), 2012, “The new oil and gas boom,” lexisnexis, ts)

**The environmental impact of the natural-gas boom is already clear and positive**. **The USA's *g*reen*h*ouse-*g*as emissions in 2011 were 9 percent lower than in 2007**. **That's a larger drop than in the *E*uropean *U*nion, with all its focus on renewables**. Why? A slow recovery and lagging demand is one answer. But **the main reason is that** **natural gas is replacing coal** everywhere as an energy source, **and gas emits half as much carbon dioxide as coal**. **This point is crucial**. **The conversation about** **natural gas cannot be had in isolation from the alternative. If we shut down all** **fracking and stop using shale gas, we will get all that energy by burning coal, which is the world's dirtiest fossil fuel and is associated with mining deaths and respiratory illnesses as well.**

***Restrictions will cause a price spike that shifts us back to coal***

**Brady ‘12**

Phil Brady, 6-6-12, the Opportune Time, Chesapeake: Turning Point or Point of No Return? <http://www.theopportunetime.com/news/online/Chesapeake-Turning-Point-or-Point-of-No-Return.php>, jj

**With the current price situation, there may be an opportunity for natural gas to replace coal** in the long term. **Not only does natural gas provide more energy than coal, but natural gas does so at significantly lower prices**. **As a matter of fact, we are already seeing the switch from coal to natural gas take place in power plants, and in entire states**. For example, Pennsylvania’s leading environmental advocacy organization, PennFuture, plans on replacing coal plants with natural gas plants. **However, keep in mind that power plants**, like Penn Future, **understand the cyclical nature of commodities.** **Consequently, *the plants will be prepared to have the retired coal-fired units ready to be used again when natural gas prices spike***. Interestingly, **if low costs are not enough to cause a price spike down the road, then perhaps new regulations on fracking will**. In April of 2012, the **U.S. Energy Secretary**, Steven **Chu, called for more stringent fracking regulations**. **If the legislation passes, we may see the now abundant supply of natural gas bottleneck, which would send prices back up**. If natural gas drillers simply slow down production, and sell natural gas to coal-users, they can shift the supply curve lower and increase demand, causing natural gas prices to increase and possibly reach levels seen in early 2008.

***There’s no comparison --- natural gas is far cleaner than coal***

**Lu et al. ‘12**

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Implications of the Recent Reductions in Natural Gas Prices for Emissions of CO2 from the US Power Sector

Environmental Science & Technology201246 (5), 3014-3021, jj

Howarth et al.(24) have suggested that emissions of CH4 associated with the fracking process involved in the production of natural gas from shale, combined with release of CH4 in the gas transportation system, could largely offset the climate related advantages occasioned by the additional sources of low cost gas (CH4, the major component of natural gas, is a significantly more effective greenhouse gas than CO2). An earlier study by Lelieveld and Crutzen(25) quantitatively analyzing the indirect effects of methane on climate warming on the basis of available estimates of fossil-fuel-related leaks of methane, suggested that **switching from coal and oil to natural gas as an energy source would reduce climate warming.** They further concluded that considering the global warming potential (GWP) on a time scale of ten years, **the fractional natural gas leakage should be less than 4.3–5.7% to ensure a reduction in climate forcing associated with switching from coal to gas. The advantages of natural gas are even more favorable if the potential climate impact is assessed on time scales much longer than a decade**. **Jiang et al.(**26) **evaluated the** greenhouse gas (**GHG) emissions resulting from the use of gas extracted from the Marcellus shale considering the entire life cycle of the gas**. They offered a comparison with the average emissions resulting from US natural gas produced in 2008, prior to any significant development of the Marcellus system. Their results suggested that **the GHG emissions from shale gas over the entire life cycle including the final combustion process are at most 3% higher than emissions associated with production and consumption of conventional sources of gas**. They argued further, in contrast to Howarth et al.,(24) that **the climate impact of the greenhouse gases emitted in conjunction with exploitation of the Marcellus shale source to produce electricity are significantly lower than those associated with the production of power using coal**. They concluded that **relatively straightforward measures could be implemented to minimize the potential release of greenhouse gases associated with the extraction of gas from shale**.(26) A more recent study by Hultman et al.(27) adopting a transparent and consistent approach to comparing the GHG footprints of conventional natural gas, shale gas, and coal concluded that **in terms of electricity generation the GHG impacts of shale gas are 11% higher than those for conventional gas** (higher than the value reported by Jiang et al.) **but only 56% of the impact expected for coal.**

***Coal causes extinction from global warming***

**Hansen 9** - Director of Nasa's Goddard Institute for Space Studies [James Hansen (Professor of Earth and Environmental Sciences @ Columbia University and Ph.D. in Physics from the University of Iowa), “Coal-fired power stations are death factories. Close them,” The Observer, Sunday 15 February 2009, pg. http://www.guardian.co.uk/commentisfree/2009/feb/15/james-hansen-power-plants-coal]

A year ago, I wrote to Gordon Brown asking him to place a moratorium on new coal-fired power plants in Britain. I have asked the same of Angela Merkel, Barack Obama, Kevin Rudd and other leaders. The reason is this **- *coal is the single greatest threat to civilisation and all life on our planet***. **The climate is nearing tipping points**. Changes are beginning to appear and **there is a potential for explosive changes, effects that would be irreversible**, **if we do not rapidly slow fossil-fuel emissions over the next few decades**. **As Arctic sea ice melts, the darker ocean absorbs more sunlight and speeds melting. As the tundra melts, methane, a strong greenhouse gas, is released, causing more warming**. **As species are exterminated by shifting climate zones, ecosystems can collapse, destroying more species.** The public, buffeted by weather fluctuations and economic turmoil, has little time to analyse decadal changes. How can people be expected to evaluate and filter out advice emanating from those pushing special interests? How can people distinguish between top-notch science and pseudo-science? Those who lead us have no excuse - they are elected to guide, to protect the public and its best interests. They have at their disposal the best scientific organisations in the world, such as the Royal Society and the US National Academy of Sciences. Only in the past few years did the science crystallise, revealing the urgency. **Our planet is in peril. If we do not change course, we'll hand our children a situation that is out of their control. One ecological collapse will lead to another, in amplifying feedbacks.** The amount of carbon dioxide in the air has already risen to a dangerous level. The pre-industrial carbon dioxide amount was 280 parts per million (ppm). Humans, by burning coal, oil and gas, have increased this to 385 ppm; it continues to grow by about 2 ppm per year. Earth, with its four-kilometre-deep oceans, responds only slowly to changes of carbon dioxide. So the climate will continue to change, even if we make maximum effort to slow the growth of carbon dioxide. Arctic sea ice will melt away in the summer season within the next few decades. **Mountain glaciers, providing fresh water for rivers that supply hundreds of millions of people, will disappear - practically all of the glaciers could be gone within 50 years - if carbon dioxide continues to increase at current rates. Coral reefs, harbouring a quarter of ocean species, are threatened. The greatest danger hanging over our children and grandchildren is initiation of changes that will be irreversible on any time scale that humans can imagine. If coastal ice shelves buttressing the west Antarctic ice sheet continue to disintegrate, the sheet could disgorge into the ocean, raising sea levels by several metres in a century. Such rates of sea level change have occurred many times in Earth's history in response to global warming rates no higher than those of the past 30 years. Almost half of the world's great cities are located on coastlines. The most threatening change**, from my perspective**, is extermination of species**. **Several times in Earth's history, rapid global warming occurred**, apparently spurred by amplifying feedbacks**. In each case, more than half of plant and animal species became extinct. New species came into being over tens and hundreds of thousands of years. But these are time scales and generations that we cannot imagine. If we drive our fellow species to extinction, we will leave a far more desolate planet for our descendants than the world we inherited from our elders. Clearly, if we burn all fossil fuels, we will destroy the planet we know.** Carbon dioxide would increase to 500 ppm or more. We would set the planet on a course to the ice-free state, with sea level 75 metres higher. Climatic disasters would occur continually. The tragedy of the situation, if we do not wake up in time, is that the changes that must be made to stabilise the atmosphere and climate make sense for other reasons. They would produce a healthier atmosphere, improved agricultural productivity, clean water and an ocean providing fish that are safe to eat. Fossil-fuel reservoirs will dictate the actions needed to solve the problem. Oil, of which half the readily accessible reserves have already been burnt, is used in vehicles, so it's impractical to capture the carbon dioxide. This is likely to drive carbon dioxide levels to at least 400 ppm. But **if we cut off the largest source of carbon dioxide - coal - it will be practical to bring carbon dioxide back to 350 ppm,** lower still if we improve agricultural and forestry practices, increasing carbon storage in trees and soil. **Coal is not only the largest fossil fuel reservoir of carbon dioxide, it is the dirtiest fuel. Coal is polluting the world's oceans and streams with mercury, arsenic and other dangerous chemicals.** The dirtiest trick that governments play on their citizens is the pretence that they are working on "clean coal" or that they will build power plants that are "capture-ready" in case technology is ever developed to capture all pollutants.

***Warming’s human-caused – consensus proves. Slowing the rate is key.***

**Deibel ‘7**

(Terry L, Professor of IR @ National War College, “Foreign Affairs Strategy: Logic for American Statecraft”, Conclusion: American Foreign Affairs Strategy Today – card starts on page 387 of this book)

Finally, **there is one major existential threat** to American security (as well as prosperity) of a nonviolent nature, which, though far in the future, demands urgent action. It is the threat of **global warming** to the stability of the climate upon which all earthly life depends. Scientists worldwide have been observing the gathering of this threat for three decades now, and what was once a mere possibility has passed through probability to near certainty. Indeed ***not one* of more than 900 articles on climate change** published in refereed scientific journals from 1993 to 2003 **doubted that anthropogenic warming is occurring**. “In legitimate scientific circles,” writes Elizabeth Kolbert, “it is virtually impossible to find evidence of disagreement over the fundamentals of global warming.” Evidence from a vast international scientific monitoring effort accumulates almost weekly, as this sample of newspaper reports shows: an international panel predicts “brutal droughts, floods and violent storms across the planet over the next century”; climate change could “literally alter ocean currents, wipe away huge portions of Alpine Snowcaps and aid the spread of cholera and malaria”; “glaciers in the Antarctic and in Greenland are melting much faster than expected, and…worldwide, plants are blooming several days earlier than a decade ago”; “rising sea temperatures have been accompanied by a significant global increase in the most destructive hurricanes”; “NASA scientists have concluded from direct temperature measurements that 2005 was the hottest year on record, with 1998 a close second”; “Earth’s warming climate is estimated to contribute to more than 150,000 deaths and 5 million illnesses each year” as disease spreads; “widespread bleaching from Texas to Trinidad…killed broad swaths of corals” due to a 2-degree rise in sea temperatures. “**The world is slowly disintegrating**,” concluded Inuit hunter Noah Metuq, who lives 30 miles from the Arctic Circle. “They call it climate change…but we just call it breaking up.” From the founding of the first cities some 6,000 years ago until the beginning of the industrial revolution, carbon dioxide levels in the atmosphere remained relatively constant at about 280 parts per million (ppm). At present they are accelerating toward 400 ppm, and by 2050 they will reach 500 ppm, about double pre-industrial levels. Unfortunately, atmospheric CO2 lasts about a century, so **there is no way immediately to reduce levels, only to slow their increase**, we are thus in for significant global warming**; the only debate is how much and how serious the effects will be.** As the newspaper stories quoted above show, we are already experiencing the effects of 1-2 degree warming in more violent storms, spread of disease, mass die offs of plants and animals, species extinction, and threatened inundation of low-lying countries like the Pacific nation of Kiribati and the Netherlands **at a** **warming of 5 degrees** or less the Greenland and West Antarctic **ice sheets could disintegrate**, **leading to a sea level** of **rise** of 20 feet that would cover North Carolina’s outer banks, **swamp the southern third of Florida**, and inundate Manhattan up to the middle of Greenwich Village. Another catastrophic effect would be the collapse of the Atlantic thermohaline circulation that keeps the winter weather in Europe far warmer than its latitude would otherwise allow. Economist William Cline once estimated the damage to the United States alone from moderate levels of warming at 1-6 percent of GDP annually; severe warming could cost 13-26 percent of GDP. But the most frightening scenario is runaway greenhouse warming, based on positive feedback from the buildup of water vapor in the atmosphere that is both caused by and causes hotter surface temperatures. **Past ice age transitions, associated** with **only 5-10 degree changes** in average global temperatures, took place in just decades, even though no one was then pouring ever-increasing amounts of carbon into the atmosphere. Faced with this specter, the best one can conclude is that “**hu~~man~~kind’s continuing enhancement of the** natural **greenhouse effect is akin to playing Russian roulette with** the earth’s climate and **hu~~man~~ity’s life support system**. At worst, says physics professor Marty Hoffert of New York University, “we’re just going to burn everything up; we’re going to heat the atmosphere to the temperature it was in the Cretaceous when there were crocodiles at the poles, and then everything will collapse.” During the Cold War, astronomer Carl Sagan popularized a theory of nuclear winter to describe how a thermonuclear war between the Untied States and the Soviet Union would not only destroy both countries but possibly end life on this planet. Global warming is the post-Cold War era’s equivalent of nuclear winter at least as serious and considerably better supported scientifically. Over the long run it puts dangers from terrorism and traditional military challenges to shame. It is a threat not only to the security and prosperity to the United States, but potentially to the continued existence of life on this planet.

***Natural gas makes the transition to renewables effective***

**Frank et al ‘09**

Matthew Frank, Jenna Goodward, Sarah Ladislaw, and Kate Zyla, May 2009, CSIS, Crossing the Natural Gas Bridge, <http://csis.org/files/publication/090626_final_crossing_gas_bridge.pdf>, jj

Addressing climate change will require extensive changes in the ways that we produce, transport and use energy. **Given the scope, scale and complexity of the current energy system, the transition to a low carbon energy future will take time, significant investment and carefully crafted polices**. **During the transition, it is important for policymakers and the private sector to balance the need for aggressive action to reduce emissions with the need for reliable and affordable energy supplies**. **Natural gas can play a critical role in “building a bridge” to a secure, low-carbon energy system**. **It is the least carbon intensive fossil fuel** (burning gas emits less carbon dioxide than burning coal or oil), **and there are readily available supplies**, both within and outside of the United States. **New natural gas power generation facilities can be brought online quickly compared to other low-carbon sources such as nuclear power**. **They also enable more renewable energy by providing baseload power generation to complement the intermittent nature of renewables like wind and solar power**. There is already a great deal of existing infrastructure –from electric power plants and home furnaces to pipelines and ports – that is able to store, transport, and use natural gas.

***Bridge fuels key --- renewables can’t displace fossil fuels in the short term***

**Tour et al. ‘10**

James M. Tour, Carter Kittrell and Vicki L. Colvin are in the Department of Chemistry, Department of Mechanical Engineering and Materials Science, and the Green Carbon Center, Rice University. Nature Materials 9,871–874(2010), Green carbon as a bridge to renewable energy, <http://www.nature.com.proxy.lib.wayne.edu/nmat/journal/v9/n11/full/nmat2887.html>, jj

**A green use of carbon-based resources that minimizes the environmental impact of carbon fuels could allow a smooth transition from fossil fuels to a sustainable energy economy.** Carbon-based resources (coal, natural gas and oil) give us most of the world's energy today, but the energy economy of the future must necessarily be far more diverse. **Energy generation through solar, wind and geothermal means is developing now, but not fast enough to meet our expanding global energy needs.** **We advocate that 'green carbon'**, which enables us to use carbon-based sources with high efficiency and in an environmentally friendly manner**, will provide our society time to develop alternative energy technologies and markets without sacrificing environmental or economic quality**. Green carbon will help to reduce the loss of our precious carbon resources, which are better reserved for high-value chemicals, and it will ensure that those hydrocarbons used for fuels will minimize carbon emissions. Through intensive research and development in green carbon, our society can guarantee an energy future that uses carbon strategically, without smokestacks, greenhouse gases and extensive environmental damage. Building a solid bridge **There is a chasm between the diminutive proportions of renewable energy currently available and our overwhelming dependence on fossil fuels that currently propel society**. The energy policy review of the Obama administration makes this soberingly clear: “**The use of renewable energy today and even in the next 5 to 10 years is still extremely limited when put into the context of total world use of fossil fuels**. For example, **the world used the equivalent of 113,900 terawatts hours** [TWh] **of fossil energy to fuel** economic activity, human mobility, and global telecommunications, among other modern day **activities in 2007**. **Replacing those terawatts hours with non-fossil energy would be the equivalent of** constructing an extra 6,020 nuclear plants across the globe or 14 times the number of nuclear power plants in the world today. In renewable energy terms, it is **133 times the amount of solar, wind and geothermal energy currently in use on the planet.**”1 Barring a huge reduction in our global standard of living, **we will need to rely on carbon-based energy for some time**. Whether this will last for several decades or into the next century is unclear, but what is apparent is that renewable approaches to energy generation are increasing at an annual rate of 7.2% compared with 1.6% for non-renewable growth2, and the continued growth of renewables will demand sustained government support. **During this transition we propose a green carbon bridge that minimizes the environmental impact of carbon fuels and lowers our reliance on these resources for primary energy generation**. Ultimately, green carbon will use hydrogen from renewable sources, while at the same time producing basic chemical feedstocks.

**Advantage 2 is Economy**

***Natural gas production is spurring economic growth and a manufacturing renaissance now --- but restrictions will push us back into recession***

**Santa 11/12**/12 Don Santa, not Santa Claus, President, Interstate Natural Gas Association of America, National Journal, 11/12/12, Natural Gas, Pipelines, Critical to Economic Growth, <http://energy.nationaljournal.com/2012/11/the-art-of-the-possible-in-ene.php?mrefid=site_search>, jj

Many in Congress also now recognize the importance of U.S. oil and gas in America’s energy future. Four years ago, natural gas was viewed as little more than a “bridge fuel,” as a temporary stop-gap to a next generation of energy resources and technologies. Today, policymakers recognize that **natural gas is a foundation fuel – a fuel that will help drive our nation’s energy future for many decades to come and that will complement emerging renewable energy sources.**

**We hope** that **the administration** and the new Congress **keep these new realities in mind as they work on the policies, laws and regulations that affect energy in the coming years**. Just like the doctor’s ethical oath, **we urge** Congress and **the administration to: “First, do no harm.” The U.S. is now the world’s largest producer of natural gas, and that abundant supply is driving an economic renaissance in our country.**

Americans remain concerned about jobs, and natural gas and pipeline development supply them in spades. IHS Global Insight estimated that **as of 2008, total natural gas production supported more than 2.8 million jobs in the United States. By increasing development of the nation's unconventional sources of natural gas alone—like shale gas and tight gas—the U.S. will add another 1.4 million jobs by 2035**, according to the IHS study. **Investment needed to build pipelines to transport domestic natural gas and oil production to market alone will support over 125,000 jobs each year from 2012 through 2035**, according to a study done earlier this year by Black & Veatch on behalf of the INGAA Foundation.

**The good news story about natural gas is not limited to jobs**. A Bank of America/Merrill Lynch study estimated that **the combined effect of lower U.S. energy costs, primarily attributable to natural gas**, and increased exports of refined petroleum products and coal **work out to a 2.2 percent increase in gross domestic product**. **When you consider how slowly the U.S. economy is growing, the case can be made that we would be on the brink of falling back into recession without the shot in the arm provided by abundant and affordable natural gas**.

Moreover, **lower cost natural gas is driving resurgence in American manufacturing and is bringing jobs that had been shipped overseas in past decades back to our shores**. **A recent study** by PricewaterhouseCoopers for the National Association of Manufacturers **forecasts an additional one million U.S. jobs in manufacturing by 2025, thanks to our nation's vast, affordable supplies of natural gas.**

**More U.S. manufacturing, more jobs, lower prices for natural-gas intensive products like plastics and fertilizer, combined with lower energy bills, all benefit American consumers that have been struggling to make ends meet during this long economic slowdown.**

On top of that, **the dramatic switch to natural gas (largely from coal) in U.S. power generation is being hailed as the reason behind carbon dioxide emissions in the United States dropping to their lowest level in 20 years.**

**As a nation, we cannot afford policies that retard this important economic and environmental driver.** Because pipelines are what make the oil and gas revolution possible – serving as the indispensable link between the supply and the market – it is important that new polices also do not hinder pipeline development.

***Reducing restrictions is key***

**Bryce ‘11**

Robert Bryce has been writing about energy for nearly two decades. His articles have appeared in dozens of publications ranging from The Atlantic Monthly to The Guardian, and The Nation to The American Conservative. He is the author of Pipe Dreams: Greed, Ego, and the Death of Enron, and Cronies: Oil, the Bushes, and the Rise of Texas, America’s Superstate. Bryce is a fellow at the Institute for Energy Research, as well as the managing editor of Energy Tribune and a contributing writer for The Texas Observer.

Wall Street Journal, 6-13-11, Manhattan Institute for Policy Research, America Needs the Shale Revolution <http://www.manhattan-institute.org/html/miarticle.htm?id=7188>, jj

**The drilling boom is the best U.S. energy news in generations and is crucial for reviving domestic manufacturing. The U.S. is on the verge of an industrial renaissance if—and it’s a big if—policy makers don’t foul it up by restricting the ability of drillers to use the technology that’s making a renaissance possible: hydraulic fracturing. The shale drilling boom now underway** in Texas, Louisiana, Pennsylvania, Oklahoma and other states **is already creating jobs, slashing natural-gas prices, and spurring billions of dollars of investment in new production capacity for critical commodities like steel and petrochemicals**. Better yet, it’s spurring a huge increase in domestic oil production, which has been falling steadily since the 1970s. Despite the myriad benefits of the low-cost hydrocarbons that are now being produced thanks to hydraulic fracturing, the media, environmental groups and politicians are hyping the possible dangers of the process, which uses high-pressure pumps to force water, sand and chemicals into shale formations. Doing so fractures the formation and allows the extraction of natural gas or petroleum. Although hydraulic fracturing has been used more than one million times in the U.S. over the past 60 years, environmental activists are hoping to ban the process or have it regulated by the Environmental Protection Agency (EPA). Opponents claim the process can harm groundwater even though drinking-water aquifers are separated by as much as two miles of impermeable rock from the shales that are being targeted by the fracturing process. New York currently has a moratorium on hydraulic fracturing. On May 31, New York Attorney General Eric Schneiderman sued several federal agencies, claiming they had not done a proper environmental assessment on the possible effects of drilling in the New York City watershed. On June 6, the New York Assembly passed a bill that will ban all forms of hydraulic fracturing in the state until mid-2012. And the EPA has launched “a comprehensive research study” on the possible “adverse impact that hydraulic fracturing may have on water quality and public health” nationwide. Despite the opposition, some of America’s biggest industrial companies are evangelizing about the merits of natural gas. Among the most fervent advocates are John Surma, the CEO of U.S. Steel, and Dan DiMicco, the CEO of Nucor. Mr. Surma told me in an interview that **the shale revolution is “the first bit of good news in U.S. manufacturing in two decades.”** Mr. DiMicco went further, telling me that “**we could change the entire manufacturing base in the U.S. if we just embrace what’s happening in natural gas.”** In March, Nucor, America’s biggest steel producer, broke ground on a new $750 million direct-reduced-iron (DRI) plant in Louisiana. The plant’s key commodity is low-cost natural gas, which will be superheated and then mixed with iron ore pellets and scrap in a furnace. The DRI process allows companies to produce about the same amount of steel with about a quarter of the capital they’d need to build a conventional integrated steel plant. And they can produce that steel with lower carbon-dioxide emissions because they are replacing metallurgical coal with methane. Nucor may ultimately invest $3 billion in Louisiana on plants that could create as many as 1,000 permanent, high-paying jobs. Meanwhile, U.S. Steel may soon build a DRI plant of its own. **Thanks to hydraulic fracturing, U.S. drillers are producing lots of ethane and propane, which are key feedstocks for the petrochemical sector**. Last October, Chevron Phillips Chemical Company announced plans to build a new plant in Baytown, Texas that will provide components for the production of polyethylene, a plastic resin used to make milk jugs and beverage containers. A few months later, the company said it was examining the feasibility of building a major petrochemical plant on the Gulf Coast. In April, **Dow Chemical announced plant expansions at several facilities in Louisiana and Texas, including construction of a new ethylene plant on the Gulf Coast that will begin operating in 2017 and a new propylene production facility that will begin operating by 2015. Dow’s reason for the expansions: “competitively priced ethane and propane feedstocks.” And last week Shell announced that it is developing plans to build a large ethylene plant in the Appalachian region. Ethylene and propylene are building blocks for a wide variety of consumer products including plastics, fibers and lubricants. The drilling industry itself is creating jobs. Over the past 12 months, some 48,000 people were hired in Pennsylvania** by companies working in the Marcellus Shale, a massive deposit that underlies several Eastern states, including Pennsylvania and New York. While the Pennsylvania economy is getting a much-needed lift from drilling, opposition in New York may mean that the state loses out on jobs and investment. A new study by Tim Considine, an energy economist at the University of Wyoming, estimates that drilling in the Marcellus Shale could add as many as 15,000 new jobs to the New York economy by 2015. The study, conducted for the Manhattan Institute (a think tank where I am a senior fellow), estimated that shale drilling in New York could add some $1.7 billion to the state’s economy by 2015 and increase the state’s tax revenue by more than $200 million. Regardless of what happens in New York, hydraulic fracturing is unlocking huge quantities of oil from shale. In March, domestic crude production was 5.63 million barrels per day, the highest level since 2003. Amazingly, production is rising despite the Obama administration’s de facto moratorium on drilling in the Gulf of Mexico. And shale oil production will likely continue rising from deposits like the Bakken Shale in North Dakota, where state officials are predicting output will hit 700,000 barrels per day by 2018, double the state’s current production. **A vibrant industrial base requires cheap, abundant and reliable sources of energy. The shale revolution now underway is the best news for North American energy since the discovery of the East Texas Field in 1930. We can’t afford to let fear of a proven technology stop the much-needed resurgence of American industry.**

***Production jumpstarts the recovery***

**Baily & Verleger ‘12**

Martin Neil Baily, Senior Fellow, Economic Studies , Philip K. Verleger Jr., Peterson Institute for International Economics, Brookings, June 27, 2012, Could Cheap Gas Save the Economy? <http://www.brookings.edu/research/opinions/2012/06/27-cheap-gas-baily>, jj

**Something is badly needed to get the economy moving again and avoid another slowdown.** The good news is that **cheaper gas could be the answer. America has hit the energy jackpot with new techniques to extract** oil and **gas from shale. The recent widespread use of** a technique called hydraulic fracturing, or "**fracking," and improved drilling technologies such as horizontal completion to harvest gas from shale, could provide a much-needed economic boost. Shale extraction represents one of the most important developments for the economy in the last 60 years. It's pushing down energy prices and creating many new opportunities for jobs, investments and manufacturing. And the new innovations are unique to the United States. Although other countries will exploit shale, none will come close to the low costs in the U.S. That's because the U.S. has a unique governmental structure in which many powers remain with the states, along with a very competitive market for the product**, as opposed to the monopolies and oligopolies that control the market in almost every other country. **While it may sound like the latest energy fad, the shale boom is for real and a serious game changer because of its size and potential longevity.** Based on equivalent amounts of energy, natural gas has been about half as expensive as oil for many years. The Energy Information Administration now predicts gas will be only a quarter or a fifth of the cost of oil through 2030, a big enough price difference to overcome the disadvantages of gas, such as its lower energy intensity by volume. How did the situation change? Was it because of the tax advantages given to the large oil companies? In fact, no. Big oil largely gave up on drilling onshore in the U.S. to concentrate on finding big fields in other countries or offshore. But small, innovative companies continued to drill for gas and oil here at home and figured out how to drill sideways and use computer technology to find deposits and extract them. Financial markets helped make this happen because small drillers could sell oil and gas using futures contracts and protect themselves against wild price swings. An economic boom **The prospect of cheap gas for years to come is already spurring investment**. Waste Management Inc (WM, Fortune 500). is investing in natural gas trucks that cost $30,000 more but save $27,000 a year in fuel costs. The big engine manufacturers are developing long-haul trucks to operate on liquefied natural gas. **Eighty percent of future electricity generating capacity is expected to be from natural gas and many coal-fired plants may be shifted to gas. The market incentives are already there and jobs are flourishing. Government could throw gas on this economic fire by** allowing facilitation, better coordination and **cutting of red tape between federal and state agencies**. Working together, government at all levels can set clear standards that protect both people and profits, yet speed the approval process to create more jobs at a faster pace. The industry, too, needs to cooperate by disclosing the nature of the fluids they are injecting during the fracking process, and by limiting emissions from the thousands of wells they will drill to alleviate some environmental concerns. Environmentalists should recognize the longer-term benefits of abundant gas supplies -- burning gas emits a lot less carbon than burning oil and coal, and extracting it is far cleaner than extracting oil from Canadian tar sands -- and work to achieve a compromise that allows rapid development with the necessary safeguards. And President **Obama should help promote a cleaner fossil fuel that shows such promise and is already creating new jobs.** But government support isn't the main problem. Drilling is being authorized today at rates that exceed the industry's capacity to drill. The real problem is that drilling for shale gas and oil could be slowed or stopped if disputes over fracking are not resolved in a way that addresses the public's concerns. Activity has already been suspended in some promising areas. **Cheap gas** may not be enough to offset the drag of a slowing global economy this year, but it **will boost long-term investment, help the beleaguered manufacturing sector and increase exports. Building petrochemical plants could suddenly become attractive in the United States. Manufacturers will "reshore" production to take advantage of low natural gas and electricity prices. Energy costs will be lower** for a long time, **giving a competitive advantage to companies that invest in America, and also helping American consumers who get hit hard when energy prices spike.** Other countries like China will attempt to replicate America's good luck, but will fail because they lack the unique legal, political and market institutions which have led to our success. **After years of bad economic news, the natural gas windfall is very good news. Let's make the most of it.**

***Sustained low prices key***

**Casselman & Gold 10-24** (BEN CASSELMAN and RUSSELL GOLD, 10-24-12, Wall Street Journal, Cheap Natural Gas Gives New Hope to the Rust Belt, <http://online.wsj.com/article/SB10000872396390444549204578020602281237088.html>, jj)

**Between 1998 and 2004, fertilizer producers—which use natural gas to make ammonia, the key component in nitrogen fertilizer—shut down more than two dozen U.S. plants, representing close to half of U.S. capacity. Some facilities were literally taken apart and shipped overseas, where gas was cheaper. Now the trend is reversing**. In September, Egyptian industrial giant **Orascom Construction** Industries ORSCY -3.55% **announced plans for a $1.4 billion fertilizer plant in Iowa**, which the company says would be the first large-scale fertilizer facility built in the U.S. in more than 20 years. **Deerfield**, Ill.-based fertilizer maker CF Industries Inc. CF +0.59% **is planning to spend up to $2 billion boosting its U.S. production through 2016.** "It's been a complete 180-degree change in our thought process," says CF Industries CEO Steve Wilson. Mr. Wilson and other industry leaders stress that they aren't expecting prices to stay this low forever, but say U.S. plants will be competitive even if prices rise somewhat. **Uncertainty about the long-term direction of natural-gas prices remains one of the biggest obstacles to a gas-driven industrial renaissance.** "**Look how much the price has changed in the last few years**," says Mike Mullis, whose Memphis-based company, J.M. Mullis Inc., helps manufacturers choose sites for new factories. "**It's just a wild card right now."** **The chemical industry**, which like the fertilizer industry saw production shift overseas in the 1990s and early 2000s, **is now rushing back to the U.S.** Companies such as Dow Chemical Co. DOW -0.30% and Chevron Phillips Chemical Company LLC have announced plans to build multibillion-dollar chemical plants in Texas, Louisiana and other states. "We convinced ourselves that this is not a temporary thing," says Peter Cella, chief executive of Chevron Phillips. "**This is a** real, durable phenomenon, a **potential competitive advantage for the United States."** Such projects could have a bigger long-term economic impact than the drilling boom itself. Drilling activity ebbs and flows with prices, and the rigs themselves rarely stay in one community for long. But chemical plants, oil refineries and the factories that use their products can last for decades. **Other winners will be energy-intensive industries like glass manufacturers—as well as companies that will benefit from increased demand for natural gas, such as the makers of turbines for gas-fired power plants. Then there are industries that do both, such as metals manufacturing. Energy can account for anywhere from 10% to 20% of costs for the metals industry, enough that the decline in gas prices could save some marginal plants. At the same time, the** oil and **gas boom has led to new demand for drilling pipe and other metal products, further boosting companies' prospects.** A few miles east of Beaver County, in Brackenridge, metals manufacturer Allegheny Technologies Inc. ATI -2.23% is building a new $1.1 billion mill, which is set to open in 2014. The plant will produce metals for, among others, chemical plants and the oil and gas industry, which uses high-tech alloys in its pipes and drilling equipment. **The new plant will burn a huge amount of gas, giving it a key advantage against competitors in Europe and Asia.** Allegheny Technologies, which also runs metals-finishing facilities in Beaver County and is headquartered in nearby Pittsburgh, spends $200 million per year on energy. CEO Richard Harshman says U.S. manufacturers now enjoy the lowest natural-gas prices in the world, with the possible exception of Russia. Sitting in his office overlooking downtown Pittsburgh, Mr. Harshman gestures to the rivers that lead north to Brackenridge and Beaver County. It was the region's rich coal seams and powerful rivers that helped it emerge as an industrial powerhouse in the 19th century, he says. Now **the energy industry is again boosting the region's prospects.**

***Price spikes will hurt consumers and cause recession***

**LAMMEY 7** [Alan, Energy Market Analyst @ Energy Intelligence Group, “High Oil, Gas Prices that Cause Recession Often Crushed in Turn” Natural Gas Week, April 2 -- LEXIS]

Alarm bells are going off everywhere regarding the state of the economy, from the crumbling subprime mortgage market to growing concern from the US Federal Reserve over stout energy prices. And a sluggish economy could take a toll on oil, and ultimately natural gas prices in the near future. "There's been a lot of concern that troubles in the US housing sector could infect the broader domestic economy and dent demand for energy," a gas futures trader in Houston said. "Historically, when the country slips into recession, the price for oil and natural gas tends to fall." **A direct link exists between energy costs and the economy. When prices go up, businesses and consumers put more of their money into keeping the lights on** and keeping their gas tanks filled. **That leaves less to spend on other goods and services, stifling growth.** Currently, high energy costs, growing consumer indebtedness, and now big troubles in the US housing market are the main catalysts of concern. The most recent signal: A huge fallout in the mortgage industry, as alarming numbers of subprime mortgage foreclosures were reported. While some economists think that the economy will weather this storm, others think recession is now inevitable; but almost **all view recent economic events and intractably high energy costs with trepidation.** "Last year, we saw prompt-month gas futures fall down to the $4 area, and we weren't even in recession during that time. So if a full-blown recession emerges, then that would seem reasonable. However, **supply and demand issues for natural gas will ultimately drive prices just like we've seen over years; but now we just have to add the recession element to the equation."**

***The economy’s on the brink --- supercharges the risk of the impact***

**RAMPELL ’11** – economics reporter for The New York Times; wrote for the Washington Post editorial pages and financial section (Catherine, “Second Recession in U.S. Could Be Worse Than First”. August 7. http://www.nytimes.com/2011/08/08/business/a-second-recession-could-be-much-worse-than-the-first.html?pagewanted=all)

**If the economy falls back into recession**, as many economists are now warning, **the *bloodletting could be a lot more painful* than the last time around**.

Given the tumult of the Great Recession, this may be hard to believe. **But the economy is much weaker than it was at the outset of the last recession in December 2007, with most major measures of economic health — including jobs, incomes, output and industrial production — worse today than they were back then**. **And growth has been so weak that almost no ground has been recouped**, even though a recovery technically started in June 2009.

“**It would be disastrous if we entered into a recession at this stage**, given that we haven’t yet made up for the last recession,” said Conrad DeQuadros, senior economist at RDQ Economics.

When the last downturn hit, the credit bubble left Americans with lots of fat to cut, but a new one would force families to cut from the bone. Making things worse, policy makers used most of the economic tools at their disposal to combat the last recession, and have few options available.

Anxiety and uncertainty have increased in the last few days after the decision by Standard & Poor’s to downgrade the country’s credit rating and as Europe continues its desperate attempt to stem its debt crisis.

President Obama acknowledged the challenge in his Saturday radio and Internet address, saying the country’s “urgent mission” now was to expand the economy and create jobs. And Treasury Secretary Timothy F. Geithner said in an interview on CNBC on Sunday that the United States had “a lot of work to do” because of its “long-term and unsustainable fiscal position.”

But he added, “I have enormous confidence in the basic regenerative capacity of the American economy and the American people.”

Still, the numbers are daunting. In the four years since the recession began, **the civilian working-age population has grown by about 3 percent. If the economy were healthy, the number of jobs would have grown at least the same amount**.

**Instead, the number of jobs has shrunk**. Today the economy has 5 percent fewer jobs — or 6.8 million — than it had before the last recession began. The unemployment rate was 5 percent then, compared with 9.1 percent today.

**Even those Americans who are working are generally working less**; the typical private sector worker has a shorter workweek today than four years ago.

Employers shed all the extra work shifts and weak or extraneous employees that they could during the last recession. **As shown by unusually strong productivity gains, companies are now squeezing as much work as they can from their newly “lean and mean” work forces.** Should a recession return, it is not clear how many additional workers businesses could lay off and still manage to function.

**With fewer jobs and fewer hours logged, there is less income for households to spend, creating a huge obstacle for a consumer-driven economy**.

Adjusted for inflation, personal income is down 4 percent, not counting payments from the government for things like unemployment benefits. Income levels are low, and moving in the wrong direction: private wage and salary income actually fell in June, the last month for which data was available.

**Consumer spending, along with housing, usually drives a recovery**. But with incomes so weak, spending is only barely where it was when the recession began. If the economy were healthy, total consumer spending would be higher because of population growth.

And with construction nearly nonexistent and home prices down 24 percent since December 2007, the country does not have a buffer in housing to fall back on.

Of all the major economic indicators, industrial production — as tracked by the Federal Reserve — is by far the worst off. The Fed’s index of this activity is nearly 8 percent below its level in December 2007.

Likewise, and perhaps most worrisome, is the track record for the country’s overall output. According to newly revised data from the Commerce Department, the economy is smaller today than it was when the recession began, despite (or rather, because of) the feeble growth in the last couple of years.

If the economy were healthy, it would be much bigger than it was four years ago. **Economists refer to the difference between where the economy is and where it could be if it met its full potential as the “output gap.”** **Menzie Chinn, an economics professor at the University of Wisconsin, has estimated that the economy was about 7 percent smaller than its potential at the beginning of this year**.

**Unlike during the first downturn, there would be few policy remedies available if the economy were to revert back into recession**.

**Interest rates cannot be pushed down further — they are already at zero**. The Fed has already flooded the financial markets with money by buying billions in mortgage securities and Treasury bonds, and economists do not even agree on whether those purchases substantially helped the economy. So the Fed may not see much upside to going through another politically controversial round of buying.

“**There are only so many times the Fed can pull this same rabbit out of its hat,” said Torsten Slok, the chief international economist at Deutsche Bank**.

Congress had some room — financially and politically — to engage in fiscal stimulus during the last recession.

**But at the end of 2007, the federal debt was 64.4 percent of the economy. Today, it is estimated at around 100 percent of g**ross **d**omestic **p**roduct, **a share not seen since the aftermath of World War II**, and there is little chance of lawmakers reaching consensus on additional stimulus that would increase the debt.

“There is no approachable precedent, at least in the postwar era, for what happens when an economy with 9 percent unemployment falls back into recession,” said Nigel Gault, chief United States economist at IHS Global Insight. “**The *one precedent you might consider is 1937*, when there was also a premature withdrawal of fiscal stimulus, and the economy fell into another recession more painful than the first**.”

***The US is key to the global economy --- decline causes war.***

**Judis**, Carnegie Endowment, 20**11**, The New Republic, August 8, [John], p. <http://www.npr.org/2011/08/08/139080654/new-republic-a-lesson-from-the-great-depression>

The first consideration has to do with the sheer gravity of the situation. What is at stake goes beyond an abstract rate of unemployment, or the prospect of a Republican White House in 2012, or even the misery of the long-term unemployed. From the beginning, this recession has been global. Germany has to take leadership in Europe, but **the United States is still the world's largest economy, the principal source of consumer and investment demand, and the banking capital of the world. If the United States fails to revive its economy**, and to lead in the restructuring of the international economy, then **it's unlikely that other economies in the West will pull themselves out of the slump. And as the** experience of the **1930s testified, a prolonged global downturn can have profound political and geopolitical repercussions.** In the U.S. and Europe, **the downturn has already inspired unsavory, right-wing populist movements. It could also bring about trade wars and intense competition over natural resources, and the eventual breakdown of important institutions like European Union and the World Trade Organization. Even a shooting war is possible**. So while the Obama administration would face a severe challenge in trying to win support for a boost in government spending, failing to do so would be far more serious than the ruckus that Tea Party and Republican opposition could create over the next year.

***Regional economic decline draws in great powers***

Liu **Qing 11**, Director of the Department for American Studies and an associate research fellow at the China Institute of International Studies, May 20, 2011, “Existing and Emerging Threats to International Security: A View from the United Kingdom,” online: <http://www.nuclearsecurityproject.org/publications/deterrence-its-past-and-future-panel-one>

Financial and **economic crisis begets political turmoil and drives destabilization on** national, regional and **global scales**.¶ The current financial and economic crisis results in direct loss in wealth. A recent report by the Asian Development Bank suggests **the crisis has already obliterated** approximately **$50 trillion in asset value worldwide** - the equivalent of roughly a year of global economic output. Ultimately, **the effects of** **the crisis spark** **destabilization, geopolitical tensions with far-reaching impacts**.¶ **We have already seen political reactions in** public demonstrations in **a diverse list of countries** including both developed countries and developing countries. Some countries and key regions even suffer from unrests brought on by the crisis. Some unrests are taking the form of regime changes and social turmoil.¶ **The crisis eats away at the foundations of stable governments**. Job losers are angry at the “haves” and the failure of the government. The resentment produces social tensions. **Governing parties lose political credibility**, and opposition groups seek to use the crisis as a wedge issue or to mobilize support for their anti-government views. As a consequence, **viable states become weaker**; **weaker states become failed states**; **failed states cause rifts and potential conflicts**.¶ The **weakening of states can produce** **instability that spills across borders**. **Opportunistic neighbors** intend to **make use of the political and economic weakness in those nations, and find excuses to intervene** in their neighbour’s politics. **Some wish to produce distractions from their own crises; some** try to take **control** of **neighboring territories**. In order to respond to some of the geopolitical consequences caused by the crisis, some **global powers may be involved** **into regional turmoil** **through military**, aid or other forms of **intervention**. These actions eventually would worsen the regional security situation.

***This goes nuclear***

**Kemp 10**

Geoffrey Kemp, Director of Regional Strategic Programs at The Nixon Center, served in the White House under Ronald Reagan, special assistant to the president for national security affairs and senior director for Near East and South Asian affairs on the National Security Council Staff, Former Director, Middle East Arms Control Project at the Carnegie Endowment for International Peace, 2010, The East Moves West: India, China, and Asia’s Growing Presence in the Middle East, p. 233-4

The second scenario, called Mayhem and Chaos, is the opposite of the first scenario; everything that can go wrong does go wrong. **The world economic situation weakens rather than strengthens**, and **India, China, and Japan suffer a major reduction in their growth rates**, further **weakening the global economy**. As a result, **energy demand falls and the price of fossil fuels plummets, leading to a financial crisis for the energy-producing states, which are forced to cut back dramatically on expansion programs and social welfare. That** in turn **leads to political unrest: and nurtures** different **radical groups, including,** but not limited to, **Islamic extremists**. The **internal stability of** some **countries is challenged**, and **there are more “failed states**.” Most serious is **the collapse of the democratic government in Pakistan and its takeover by Muslim extremists, who then take possession of a large number of nuclear weapons. The danger of war between India and Pakistan increases significantly. Iran**, always worried about an extremist Pakistan, expands and **weaponizes its nuclear program. That** further **enhances nuclear proliferation in the Middle East, with Saudi Arabia, Turkey, and Egypt joining Israel and Iran as nuclear states.** Under these circumstances, **the potential for nuclear terrorism increases, and the possibility of a nuclear terrorist attack in either the Western world or in the oil-producing states may lead to a further devastating collapse of the world economic market, with a tsunami-like impact on stability. In this scenario, major disruptions can be expected, with dire consequences for** two-thirds of **the planet’s population.**

***Best studies prove***

**Royal 10** – Jedediah Royal, Director of Cooperative Threat Reduction at the U.S. Department of Defense, 2010, “Economic Integration, Economic Signaling and the Problem of Economic Crises,” in Economics of War and Peace: Economic, Legal and Political Perspectives, ed. Goldsmith and Brauer, p. 213-214

Less intuitive is how periods of **economic decline may increase the likelihood of external conflict**. Political science literature has contributed a moderate degree of attention to the impact of economic decline and the security and defence behaviour of interdependent states. Research in this vein has been considered at systemic, dyadic and national levels. Several notable contributions follow. First, on the systemic level, Pollins (2008) advances Modelski and Thompson's (1996) work on leadership cycle theory, finding that rhythms in the global economy are associated with the rise and fall of a pre-eminent power and the often bloody transition from one pre-eminent leader to the next. As such, exogenous shocks such as economic **crises could usher in a redistribution of relative power (see also Gilpin. 1981) that leads to uncertainty about power balances, increasing the risk of miscalc**ulation (Feaver, 1995). Alternatively, even a relatively certain redistribution of power could lead to a permissive environment for conflict as **a rising power may seek to challenge a declining power** (Werner. 1999). Separately, Pollins (1996) also shows that global economic cycles combined with parallel leadership cycles impact the likelihood of conflict among major, medium and small powers, although he suggests that the causes and connections between global economic conditions and security conditions remain unknown. Second, on a dyadic level, Copeland's (1996, 2000) theory of trade expectations suggests that **'future expectation of trade' is a significant variable** in understanding economic conditions and security behaviour of states. He argues that interdependent states are likely to gain pacific benefits from trade so long as they have an optimistic view of future trade relations. However, **if the expectations of future trade decline, particularly for difficult to replace items such as energy resources, the likelihood for conflict increases, as states will be inclined to use force to gain access to those resources**. **Crises could potentially be the trigger for decreased trade expectations either on its own or because it triggers protectionist moves by interdependent states**.4 Third, others have considered the link between economic decline and external armed conflict at a national level. Blomberg and **Hess (2002) find a strong correlation between internal conflict and external conflict, particularly during periods of economic downturn.** They write: The **linkages between internal and external conflict and prosperity are strong and mutually reinforcing**. **Economic conflict tends to spawn internal conflict**, which in turn returns the favour. Moreover, the presence of a recession tends to amplify the extent to which international and external conflicts self-reinforce each other. (Blomberg & Hess, 2002. p. 89) **Economic decline has also been linked with an increase in the likelihood of terrorism** (Blomberg, Hess, & Weerapana, 2004), **which has the capacity to spill across borders and lead to external tensions.** Furthermore, **crises generally reduce the popularity of a sitting government**. "Diversionary theory" suggests that, **when facing unpopularity arising from economic decline**, sitting **governments have increased incentives to fabricate external military conflicts to create a 'rally around the flag' effect**. Wang (1996), DeRouen (1995). and Blomberg, Hess, and Thacker (2006) find supporting evidence showing that economic decline and use of force are at least indirectly correlated. Gelpi (1997), Miller (1999), and Kisangani and Pickering (2009) suggest that the tendency towards **diversionary tactics are greater for democratic states** than autocratic states, due to the fact that democratic leaders are generally more susceptible to being removed from office due to lack of domestic support. DeRouen (2000) has provided evidence showing that **periods of weak economic performance in the United States, and thus weak Presidential popularity, are statistically linked to an increase in the use of force**. In summary, recent economic scholarship positively correlates economic integration with an increase in the frequency of economic crises, whereas political science **scholarship links economic decline with external conflict** at systemic, dyadic and national levels.5 This implied connection between integration, crises and armed conflict has not featured prominently in the economic-security debate and deserves more attention.

***Even a short term decline in the US would cause global catastrophe***

**Schuman 11/13/12** Michael Schuman writes about Asia and global economic issues as a correspondent for TIME in Beijing, China. In his 16 years as a journalist in Asia, he has reported from a dozen countries, including China, India, Japan and Indonesia. Assignments have taken him into Gobi Desert sandstorms, Malaysian mosques, Indian call centers and Chinese shirt factories and to a North Korean state dinner (complete with Kim Jong Il himself). Schuman is the author of The Miracle: The Epic Story of Asia's Quest for Wealth. Before joining TIME in 2002, he was a correspondent for the Wall Street Journal and a staff writer for Forbes. Originally from New Jersey, he has a B.A. in Asian history and political science from the University of Pennsylvania and a master of international affairs from Columbia. Nov. 13, 2012, Time Magazine, Will the Global Economy Tumble Off America’s Fiscal Cliff? <http://business.time.com/2012/11/13/will-the-global-economy-tumble-off-americas-fiscal-cliff/#ixzz2HtYJ44S6>, jj

**Forget all of the talk about the rise of China and the shift of economic power from West to East. The U.S. economy remains the largest and most important in the world, and what happens in America still determines what happens to the global economy.**

No wonder, then, that investors from Hong Kong to London have become fixated on the looming “fiscal cliff” facing the U.S. government. If re-elected President Barack Obama can’t reach a new deal with Republican Party Congressmen in the House of Representatives on closing the country’s trillion-dollar budget deficit, a slate of deep spending cuts and tax hikes will automatically come into effect next year that will in all likelihood derail the slow-moving U.S. recovery from the 2008 financial crisis. That would without doubt do some serious damage to growth globally. Rating agency Fitch proclaimed that “the U.S. fiscal cliff represents the single biggest near-term threat to a global economic recovery.”

**A U.S. plunge** off the fiscal cliff **would hit the global economy at an especially fragile moment**. The news just about everywhere has already been bad. **Fears that Japan might slip into** (yet another) **recession rose** on Monday **when the world’s third-largest economy reported its GDP shrank** by an annualized 3.5% in the quarter ending September. **The euro zone is expected to contract in 2012 as well**. On November 7, Mario Draghi, president of the European Central Bank, warned that even powerhouse Germany is starting to suffer the ill effects of the debt crisis. “Germany has so far been largely insulated from some of the difficulties elsewhere in the euro area,” Draghi said. “But **the latest data suggest that these developments are now starting to affect the German economy.”**

European leaders and the IMF continue to bicker over the bailout of **Greece**, leaving open the possibility that the country **could still get forced from the monetary union**. **Even emerging markets are struggling**. **China and India are experiencing their worst slowdowns in many years and both have major reform challenges to confront**. No wonder the IMF in October lowered its forecast for global GDP growth to 3.3% in 2012.

**Next year was supposed to be a bit better. But that depends on the U.S.** We’ve already witnessed the drastic impact that rapid fiscal retrenchment is having on some of the weaker economies in Europe, such as Spain. The U.S. would likely face similar turmoil. If the economy takes a full-on dive off the fiscal cliff, it would probably land in another recession. The Congressional Budget Office figures that such a sharp fiscal shock “will lead to economic conditions in 2013 that will probably be considered a recession, with real GDP declining by 0.5 percent between the fourth quarter of 2012 and the fourth quarter of 2013 and the unemployment rate rising to about 9 percent in the second half of calendar year 2013.” Simply put, it would be ugly.

And not just for Americans. A U.S. leap off the fiscal cliff “would push the country into a recession with large international spillovers,” the IMF warned the G-20 recently. “**Even if** the fiscal cliff were **quickly unwound, the damage to the economy could be substantial**.” Fitch calculated that the dramatic fiscal tightening could possibly toss the entire global economy into recession. “While the world economy would still grow 1.3% in 2013, this is just half our baseline forecast of 2.6%,” Fitch said.

The fiscal cliff would transfer to the rest of the world through many channels. The tax hikes and spending cuts would take cash out of the pockets of both companies and consumers, curtailing purchases of everything from German industrial equipment to Chinese-made blue jeans. **A U.S. slowdown would also dampen commodity prices, hurting raw material exporters like Brazil and Russia.** The **jitters created by the uncertainty** over U.S. fiscal policy **would ripple through global financial markets as well.**

**Observation 2 is solvency**

***The EPA’s rule is counterproductive and increases air pollution --- it should be struck down***

**Peshek & Millican ‘12**

Adam Peshek, Research Associate Reason Foundation, Robin Millican, Policy Associate Institute for Energy Research, 2-28-12, Reason Foundation, Letter to U.S. Environmental Protection Agency Office of Administrator Lisa Jackson, <http://reason.org/files/oil_and_gas_nsps_and_neshap_comment.pdf>, jj

6) **The NSPS Incentivizes the Use of Outdated Equipment and Deters Development** **Because the NSPS standards apply only to new or modified facilities, the rule creates the inadvertent economic incentive for owners and operators to continue using outdated, lessefficient equipment rather than incurring new costs and regulations to change.** Furthermore, **because the proposed NSPS revisions would apply to new natural gas wells— approximately 11,400 of which are drilled each year—the rule may cause operators to undertake fewer projects.**

7) **Regulatory Alternatives Should Be Evaluated** Prior To Regulation Although EPA has indicated its openness to making modifications to a handful of provisions in its proposed rule—including evaluating ways to reduce reporting requirement burdens—**no evidence was presented in the proposed rule to indicate that EPA had evaluated the costs and benefits of regulatory alternatives**, such as positive incentives to achieve the desired result. The Agency is obligated to do so under Executive Order 12866 (EO 12866), which states: “**In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, *including the alternative of not regulating***.” Furthermore, EO 12866 directs that “each agency shall identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public.”

***De-regulation alleviates confusion and restores certainty***

**Russell ‘12**

Barry Russell, President, Independent Petroleum Association of America (IPAA), National Journal, 1-17-12, What's Ahead for Natural Gas? http://energy.nationaljournal.com/2012/01/whats-ahead-for-natural-gas.php?mrefid=site\_search, jj

Furthermore, as President **Obama** touts the benefits of natural gas, his administration **has embarked upon a double-flanked assault on the oil and natural gas industry, led by the *E*nvironmental *P*rotection *A*gency and the Interior Department. These federal agencies have sought to regulate hydraulic fracturing and instill unfounded fear about its side-effects and management at every turn. The states are well-equipped to handle the environmental issues surrounding development**. After all, **they have been regulating hydraulic fracturing for decades.** **More and more states have been utilizing FracFocus, the chemical registry website on which companies voluntarily disclose their hydraulic fracturing fluids to the public**. **The state regulatory systems can deal with each state’s different geological and environmental complexities**. ***Attempting to operate a federal regulatory regime out of Washington, with limited funds and regulators, would cause confusion and cost many jobs.*****America’s natural gas industry has quite a future – as long as it’s not impeded by politically motivated forces**. ***The administration must*** make its campaign rhetoric a reality and ***call off its massive federal overreach***. **If states remain empowered to continue their responsible regulation of hydraulic fracturing, natural gas will certainly power America’s future.**

***A moratorium is key to certainty***

**Loris ‘11**

Nicolas D. Loris is a Policy Analyst in the Thomas A. Roe Institute for Economic Policy Studies at The Heritage Foundation. 9-8-11, Heritage, Energy Exploration Would Create Jobs and Raise Revenue Without Raising Taxes <http://www.heritage.org/research/reports/2011/09/energy-exploration-would-create-jobs-and-raise-revenue-without-raising-taxes>, jj

**Place a freeze on new environmental regulations**. Stressing the need for regulatory certainty, President Obama recently asked EPA Administrator Lisa Jackson to withdraw the agency’s draft for more stringent Ozone National Ambient Air Quality Standards. EPA’s regulatory overreach on this one rule would have destroyed 7.3 million jobs and nearly $700 billion in economic activity by 2020, and the rule had questionable environmental benefits.[8] That is a good start to helping the economy recover, but **if** **the President truly wants to provide regulatory certainty, he should tell the EPA to withdraw other new environmental regulations that all miserably fail the cost–benefit test**. If he does not act, then Congress should legislatively place a freeze on new environmental regulations. Time to Drill, Create, and Collect **Increasing the American energy supply should be low-hanging fruit** for the “super committee” charged with tackling the massive U.S. debt problem. Allowing access for exploration and **creating an efficient regulatory process that allows energy projects to move forward in a timely manner will not only increase revenue through more royalties, leases, and rent; it will also create jobs and help lower energy prices in the process. These are sensible policy ideas with or without a debt crisis, but given the fiscal situation, this is a no-brainer.**

***Certainty’s key to production***

**Baker Institute ’11** (James A. Baker III Institute for Public Policy of Rice University, October, Shale Gas and U.S. National Security, online, jj)

**To tap this benefit, it will be essential for the *U*nited *S*tates to promote a stable investment climate** **with regulatory certainty.** In particular, **the *U*nited *S*tates will need adopt policies that ensure shale gas exploitation can proceed steadily and predictably** with sound environmental oversight. The ***U*nited *S*tates should focus squarely on setting the policies needed to ensure that shale gas can play a significant role in the U.S. and global energy mix, thereby contributing to greater diversification of global energy supplies and to the long-term national interests of the United States.**

***Federal de-regulation won’t cause a race to the bottom.***

**Willie ‘12**

Matt Willie, J.D. candidate, April 2012, J. Reuben Clark Law School, Brigham Young University, Brigham Young University Law Review, 2011 B.Y.U.L. Rev. 1743, Hydraulic Fracturing and "Spotty" Regulation: Why the Federal Government Should Let States Control Unconventional Onshore Drilling, Lexis, jj

B. Federal v. State: Why "Spotty" Regulation is Better Regulation

**The push for more federal control of hydraulic fracturing** seems at least partly motivated by differences in state approaches to the issue. Professor Wiseman, for example, argues that "the varying complexity and breadth of state oil and gas regulation suggests that some states are not adequately protecting underground sources of drinking water." n198 The flaw in such arguments, however, is that they [\*1772] **ignore the fact that the depth, accessibility, extraction techniques, and characteristics of oil and gas reserves vary from state to state**. In fact, **that fracking regulation in the United States has been "spotty**" n199 **may actually be a good thing.**

1. Regional differences

In many respects, ***the more local and specialized the regulation, the better***. This is true primarily because **oil and gas extraction methods**, and therefore hydrofracking techniques, **are** almost **always geologic-and region-specific**. n200 **This fact makes additional federal regulation unnecessary at best and** potentially ***extremely problematic*** **if it conflicts with local and state land use controls.** The Texas Supreme Court hinted at this idea in the Coastal Oil opinion. n201 A major basis for the court's decision was the desirability of deferring to the Texas Railroad Commission on oil and gas matters, especially where they involve questions of property boundaries and extraction techniques within specific reserves. n202 The Commission has the luxury of focusing all its time and manpower on oil and gas regulation (something the court lacks) and has sufficient remedial authority to enforce its rules in a way that both protects landowners n203 and promotes "the state's goals of preventing waste and conserving natural resources." n204 Such realities make the Commission, not the court, the appropriate entity for formulating effective regulatory provisions. For similar reasons, **federal intervention into state regulation of fracking seems unnecessary**. Just as a commission's staff of experts is better equipped than judges to promulgate rules for state oil and gas development, **state officials are** generally **more informed about local and regional production techniques than federal regulators**. n205 Not [\*1773] only do many energy-producing states operate under somewhat conflicting theories of oil and gas law, n206 but **the state commissions that design rules that conform to those theories must be aware of the location, form, and accessibility of their hydrocarbon reserves in order to effectively regulate.** Of course, federal agencies can set up regional offices, and federal regulators can familiarize themselves with local industry realities, but **federal employees will never be subject to the same kind of political accountability as state officials, and this may make them less receptive to local concerns**. Perhaps more importantly, **federal officials remain bound by federal directives drawn up by bureaucrats who reside far from most of the reserves their regulations affect.** Ironically, **even proponents of federal regulation acknowledge the need for region-specific fracking rules**. Professor Wiseman notes that, "**invariably, effects will differ by region, by the type of operation and disposal methods used, and the type of formation fracked**." n207 **State officials are arguably more familiar with these variables than federal employees, yet she promotes an additional, potentially burdensome layer of federal control**. n208 This seems shortsighted simply because ***what works well in one state may work poorly in another.*** This reality has long been a burr in the side of would-be federal mining regulators. Despite widespread expansion of national environmental protections throughout the twentieth century, n209 Congress struggled to craft effective mining legislation. This was primarily because geological and regional differences encouraged a [\*1774] state-centric regulatory scheme. n210 A former government attorney who helped draft the Surface Mining Control and Reclamation Act of 1977 pointed out that coal regulation "differs significantly from other federal environmental regulatory statutes" primarily because of "the "diversity' in coal mining areas." n211 This concern eventually resulted in Congress admitting that "**the primary governmental authority for developing, authorizing, issuing, and enforcing [mining] regulations ... should rest with the States**." n212 Such **diversity is** even more **apparent among** oil and **gas formations**. A comparison of operations in the Bakken Shale with those in the Barnett Shale is illustrative. Bakken companies primarily drill for oil, n213 while Barnett operators produce gas. n214 **Typical spacing in the Bakken can be as much as 1280 acres per well**, n215 **as opposed to Barnett spacing, which rarely exceeds 100 acres**. n216 **This, of course, creates far fewer wells in the Bakken states and thus a better opportunity to avoid drilling near communities. Likewise, Bakken states** (Montana and North Dakota) **are largely rural to begin with, making land use decisions simpler and disputes regarding property lines and leasehold interests less common. Even the use of fracking fluids varies widely by field and formation. As the EPA noted, "on any one fracturing job, different fluids may be used in combination or alone at different stages in the fracturing process**. **Experienced service company engineers will devise the most effective fracturing scheme, based on formation** [\*1775] **characteristics, using the fracturing fluid combination they deem most effective**." n217 Fracking companies in Montana, for example, "have been using relatively non-intrusive fluids - mostly a gel water sand frack, with the gel consisting of a drilling mud or a polymer." n218 In Pennsylvania's Marcellus Shale, on the other hand, there have been reports of higher than expected levels of radiation in wastewater from fracked wells. n219 **Arguments for more federal intervention *consistently fail* to account for these realities**. Professor Wiseman writes, for example, that an "absence of regulation [would] not [be] of great concern if fracking [were] a relatively benign practice that could be sufficiently controlled through the general permitting process; but if fracking has significant environmental and public health impacts, the lack of regulation is problematic." n220 The problem with such an all-or-nothing analysis is that **fracking is both benign and environmentally hazardous - depending on its location**. n221 **In some states, the general permitting process provides adequate environmental protections; in others, more stringent rules are justified**. n222 But **these are decisions that ought to be left to state policymakers and state regulatory agencies, not federal employees who may be ignorant to specific local and regional practices and** may **thus** rely on articles like Wiseman's, which **downplay the importance of geological dissimilarities and variations in fracking technique. With state regulations already providing extensive environmental protections, additional federal fracking controls**, in all likelihood, **can** [\*1776] **have only one of two effects: either (1) they will "have little impact," representing "no more than ideological tinkering with state law";** n223 **or (2) they will alter the entire state-centric system, essentially voiding many workable state rules, creating overlapping controls that slow down domestic oil and gas production, and producing uniform standards for fracking techniques that ought to vary by field and region.** Should Congress opt for such a uniform system, the safest route would be to force all states to adopt stringent fracking rules. The problem is that while **such regulations** might be appropriate and welcomed in New York, they **could be unnecessarily restrictive in states like Montana and North Dakota.** At the same time, ***crafting a middle-of-the-road national standard could send the message that stricter requirements are unnecessary*.** n224

2. Federal regulatory failures

Obviously, only a shortsighted system would fail to account for at least some regional and geological differences. But **even if each state's reserves were identical, no evidence suggests that federal fracking regulation would be superior to state control**. In fact, **the BP spill and other recent energy industry problems have created concerns that the entire federal energy regulatory machine is simply too large, and too politically dominated, to be effective**. n225 As **the National Commission on the BP Deepwater Horizon Spill** and Offshore Drilling **described, from its outset "federal regulation of offshore drilling awkwardly combined" two competing priorities - environmental protection and energy independence - which were often difficult to reconcile "as a series of Congresses,** [\*1777] **Presidents, and Secretaries of the Interior" moved in and out of power**. n226 **The result was an odd**, and often ***irrational***, **set of rules**. "**In some offshore regions**," for example, "oil **drilling was essentially banned in response to environmental concerns. Elsewhere**, **most notably in the Gulf, some environmental protections and safety oversight were formally relaxed or informally diminished so as to render them ineffective**." n227 **As drilling moved further offshore and more money poured into federal coffers, safety and environmental risks increased**. Unfortunately, **these risks "were not matched by greater, more sophisticated regulatory oversight**." n228 Some problems were due to the fact that **the same federal agency, the** Minerals Management Service (**MMS**), **was "responsible for regulatory oversight of offshore drilling - and for collecting revenue from that drilling**." n229 **A 2008 study by the Interior Department revealed numerous ethical scandals involving MMS employees**, "including allegations of financial self-dealing, accepting gifts from energy companies, cocaine use and sexual misconduct." n230 **Another Interior Department report prepared after the BP spill cited communication problems at the Agency as well as unevenly staffed offices and inadequate training.** n231 As the National Commission put it: **The overall picture of MMS that has emerged since [the spill] is distressing. MMS became an agency systematically lacking the resources, technical training, or experience in petroleum engineering that is absolutely critical to ensuring that offshore** [\*1778] **drilling is being conducted in a safe and responsible manner. For a regulatory agency to fall so short of its essential safety mission is inexcusable**. n232 **In light of such failures, it is puzzling that critics of fracking believe so adamantly in the superiority of national controls over a state-centric system that has worked with relatively few problems for six decades.**

C. Financial Costs of Federal Regulation

Even if fracking regulators were somehow immune from the failures that have plagued other agencies, **additional federal regulation should not be adopted without a realistic assessment of its price tag**. Testifying before the House Committee on Energy and Commerce in 2005, Victor Carrillo, chairman of the Texas Railroad Commission, argued that **stricter federal fracking standards "would not result in cleaner water but only in adding significant cost**. **Such unnecessary regulation and the concomitant cost can only serve to ~~retard~~ the development of much needed natural gas in this country**." n233 This statement seems even more appropriate six years later, as **additional research has revealed just how significant those costs could be. Merely studying the issue at the federal level can be expensive**. As part of its Science to Achieve Results Program, **the EPA requested $ 4.3 million for fracking research alone in fiscal year 2011**. n234 The amount constitutes a $ 2.5 million increase from 2010. n235 **The costs of actually administering a federal fracking regulatory program, after research is completed and rules are drafted, would undoubtedly be *astronomically higher*. Compounding this concern is the serious potential for federal financial waste**. According to a study completed in early 2011 by the Government Accountability Office, "**overlapping and duplicative** [\*1779] [**federal] programs ... cost taxpayers billions of dollars each year**." n236 **The nonpartisan office uncovered a staggering number of federal inefficiencies, including "82 federal programs to improve teacher quality; 80 to help disadvantaged people with transportation**; 47 for job training and employment; and 56 to help people understand finances." n237 **It seems unlikely that additional federal hydraulic fracturing regulation, if enacted, would not suffer from similar financial inefficiencies.** Of course, state regulatory agencies could be just as wasteful. Nevertheless, **citizens are arguably more equipped to hold local and state government officers politically accountable for their waste**. n238 **This is so not only because citizens generally have greater access to local and state leaders, but also because they can compare government spending in their state with that of neighboring states.** n239 In contrast, **selecting appropriate foreign governments for comparisons of federal spending seems a much more daunting task. Regardless of the cost to taxpayers, additional federal regulation would put a significant financial burden on developers. A 2009 report** prepared for the American Petroleum Institute estimates that **national fracking legislation could increase the costs of shale plays by $ 47,333 per well and non-shale plays by $ 109,833 per well**. n240 Perhaps even more troubling is that **such "added costs raise the economic threshold ... at which a play can be developed," decreasing the total number of wells operators who are willing to drill**. n241 As the report explains: Experience suggests **that a 20% reduction in the number of wells completed each year due to increased regulation is a valid** [\*1780] **assumption due to the additional time needed to file permits, push-back of drilling schedules due to higher costs, increased chance of litigation, injunction or other delay tactics used by opposing groups and availability of fracturing monitoring services**. n242 **Such costs would undoubtedly be passed along to consumers, compounding government waste with higher prices at the pump.**

V. Conclusion

**The tremendous economic impact of hydraulic fracturing should not be understated**. **As the need to replace conventional sources of energy becomes more pressing, the United States' dependence on foreign oil and the risks of offshore drilling may combine to make the debate about fracking and other unconventional forms of drilling one of the most important energy-related issues** of the twenty-first century. **Special interest groups insist that fracking's impact** on the environment **is disastrous, but decades of study have revealed only minor concerns**. **In light of federal regulatory failures such as those that led to the BP disaster in the Gulf, leaving control of hydraulic fracturing with the states seems to be a far more prudent course**. Local and regional industry realities should guide energy regulation in the United States, and **state officials are far more equipped than federal employees to successfully account for the geological and human variables that shape onshore development**. State regulation of such development has intensified as unconventional methods of drilling have increased. In the process, courts have properly addressed the legal aspects of hydraulic fracturing while giving appropriate deference to agency regulations based on state common law theories, legislative directives, environmental needs, and local practices. **Hydraulic fracturing has played an important role in the oil and gas industry for more than sixty years. Regulatory intrusions by the federal government at this point will only create unnecessary financial burdens and hinder developers' ability to efficiently extract hydrocarbons.** [\*1781] As the Groundwater Protection Council warned more than a decade ago: "**If additional federal regulations were to be imposed they would not be based on scientific observation of associated contamination, and there would be little if any increase in protection of public health and the environment**." n243 W**ith so little to gain, the costs of additional federal controls are simply unjustifiable.**

***States regulations will fill in and solve.***

**Willie ‘12**

Matt Willie, J.D. candidate, April 2012, J. Reuben Clark Law School, Brigham Young University, Brigham Young University Law Review, 2011 B.Y.U.L. Rev. 1743, Hydraulic Fracturing and "Spotty" Regulation: Why the Federal Government Should Let States Control Unconventional Onshore Drilling, Lexis, jj

**What is conspicuously missing from many of these groups' arguments, however, is an explanation of how and why federal regulation will actually diminish fracking's environmental risks**. In fact, a closer look at much of the rhetoric against a state-centric regulatory system reveals not so much a push for federal regulation, but rather for federal prohibition of hydraulic fracturing. n122 Perhaps [\*1762] this is because, by and large, **state control of hydrofracking is already relatively expansive. As fracking has become more widespread, state regulation of the practice has intensified**, although specific rules vary widely. n123 Some see this variation as a reason for more federal control. n124 But as the following discussion illustrates, **every producing state has promulgated a considerable amount of fracking regulation, whether through general permitting processes or more directly**. n125 **Wyoming**, for example, **was the first state to require companies to fully disclose the chemicals used in their fracking fluids.** n126 **The state also requires drillers to give notice to surface owners of planned oil and gas operations on their lands and make good faith efforts to enter into "surface use agreements" that will protect surface resources, provide for reclamation of disturbed areas, and determine a payment for any** damages caused by the operations. n127 **Developers must show that they have complied with this requirement before the** [\*1763] **Wyoming Oil and Gas Commission will grant a permit to drill** n128 or a permit to construct a pit for retaining fluids. n129 Moreover, before any well can be used for injection activities, **an operator must demonstrate to the Commission that its casing is leak-proof and able to withstand pressures of at least 300 pounds per square inch**. n130 **New York has perhaps the nation's strictest fracking controls**. Shortly before leaving office in late 2010, former governor David Paterson "issued an executive order imposing a moratorium on permits for horizontal wells and instructed the [Department of Environmental Conservation] to revise its draft of standards governing the use of high-volume fracking." n131 In July of 2011, the Agency released a revised Draft Supplemental Generic Environmental Impact Statement (SGEIS) which recommended that the moratorium be kept in place in certain areas and lifted in others, subject to strict regulation. n132 Even without the moratorium, the state's rules are far from lenient. An operator seeking to drill needs to submit an application for a permit, pay a permit fee, offer a description of the planned drilling project, provide three copies of a plat, and complete an Environmental Assessment Form. n133 This form "provides information about the physical setting of the proposed project, the general character of the land and land use, the projected size of the area that will be disturbed and the length of time the drilling rig will be on the [\*1764] site." n134 A Supplemental Environmental Impact Statement and additional permits may also be necessary. n135 Even **Professor Wiseman calls the state's fracking rules "relatively comprehensive**." n136 **She says the same about Pennsylvania**, even though the state uses general oil and gas rules to regulate fracking. n137 Strong permitting requirements compel operators to account for any water sources or coal seams near drilling sites, n138 and the Department of Environmental Protection may deny permits that would violate any applicable environmental law. n139 The state also has separate rules for exploration activities in the Marcellus Shale. n140 Likewise, **Colorado has adopted comprehensive fracking regulations**. In 2009, the state overhauled its rules, providing more protections against methane contamination. n141 Even before the overhaul, the Colorado Oil and Gas Conservation Commission (COGCC) instituted a "mitigation program" to seal improperly abandoned wells. The program resulted in a reduction of methane concentrations in close to 30% of all sampled water wells. n142 More recently, the Commission has begun investigating the use of diesel fuel in fracking operations and regularly testing groundwater wells for contamination. n143 The COGCC also requires operators to maintain a "Chemical Inventory" of all chemicals used in drilling and completion, including fracturing, at each well site. n144 **The Alabama Oil and Gas Board claims that it "investigates every complaint it receives**." n145 A unique feature of its investigations is that each one includes research regarding "historical water quality [\*1765] data." n146 As the EPA explains, this "information is important because the coal-bearing Pottsville Formation often contains high concentrations of iron." n147 The symptoms of iron staining, which can occur suddenly and "in water with a history of good quality," are apparently similar to those of methane contamination. n148 Such observations show the importance of accounting for regional characteristics in fracking regulations. Perhaps more than any other state, **Texas has been criticized for its fracking regulations**, primarily because until recently no rule addressed the practice specifically. n149 **That changed** in June of 2011, **when** Texas governor **Rick Perry** **signed into law H.B. 3328, which requires operators to publicly disclose chemicals used in fracturing applications**. n150 Even without the legislation, much of the criticism of Texas is misplaced, since, as Professor Wiseman herself admits, **many of the state's general oil and gas regulations "apply to various components of the fracking process.**" n151 Like other states, **operators cannot drill without a permit**, n152 **and they must obtain a Water Board Letter from the state Commission on Environmental Quality setting out "the depth to which fresh water must be protected" for each well**. n153 **No operator in the state "may dispose of any oil and gas wastes [which would include fracking fluids] by any method without obtaining a permit**." n154 In addition, **the state has extensive casing and cementing regulations, including requirements that all casing be** [\*1766] **made of steel and "hydrostatically pressure tested," and that "all usable-quality water zones be isolated and sealed off to effectively prevent contamination or harm."** n155 Despite the peculiarities of each state's regulatory system, **almost all share several common features. Every producing state, for example, has "permitting requirements governing the locating, drilling, completion, and operations of wells."** **n156 Almost all have casing and cementing requirements designed to isolate ground water from production zones**. n157 **Every state but one requires regulatory authorization before operators can leave a well idle**. n158 **And all twenty-seven producing states have regulations regarding the proper plugging of wells**. n159 **Given the level of scrutiny most states are already applying to hydraulic fracturing, it is difficult to see how federal agencies could significantly curb any of the few environmental effects left unaddressed**. Congress's decision in 2005 to exempt most aspects of fracking from federal regulation has been criticized as a "loophole" for developers. n160 But as the Independent Petroleum Association of America states, "This characterization is entirely inaccurate; **Congress' action merely keeps in place a system that has worked for half a century**." n161

***No impact to methane***

Abby W. **Schachter** (Writer for the Weekly Standard and the New York Post) June 20**12** “We've got to become energy independent to slow terrorism-fracking is the key” <http://www.zimbio.com/Fracking+Lawsuits/articles/2ymubk5GzT3/ve+got+become+energy+independent+slow+terrorism>

**As for Howarth’s research on fracking’s carbon footprint, his conclusions were quickly debunked by fellow researchers at Cornell as well as by other scientists**. As Lawrence M. **Cathles of Cornell’s Department of Earth and Atmospheric Sciences concluded in his rebuttal, “The data clearly shows that substituting natural gas for coal will have a substantial greenhouse benefit under almost any set of reasonable assumptions. Methane emissions must be five times larger than they currently appear to be before gas substitution for coal becomes detrimental from a global warming perspective on any time scale.”** The debate over fracking has gotten so extreme, in fact, that reasonable environmentalists are beginning to complain. As Andrew Revkin, one of the deans of environmental reporting in the United States, recently noted, **fracking opponents sound so intransigent that he questions whether there is any resource to which the anti-gas advocates would say yes. The great irony is that only a few short years ago, many environmentalists were promoting *n*atural *g*as as the cleaner alternative to oil and coal**. The theory was that **natural gas would provide a temporary bridge from pollutants such as oil and coal to so-called clean tech** (wind and solar electricity generation, some nuclear power, and electric cars). Now that natural gas is cheap and plentiful, however, many openly worry that there may never be a full-scale transition to wind and solar because there won’t be a need. Gas is cleaner than coal and oil, it is equally or more efficient, it has the same applications as coal and oil, and it can be exported. Wind and solar haven’t proven to be cost-effective, nor are they easy to transport or possible to export. This realization has led to near hysterical opposition to fracking. As Howarth himself argued recently, “It is pure folly to view shale gas [as] a bridge fuel to a green future.” These are the arguments, moreover, that help explain the otherwise inexplicable rejection of natural gas extraction in New York, a state that could desperately use new industry and new revenues. There is gas from the Marcellus Shale under the state’s southern tier, and there are gas companies that came into the state nearly five years ago to lease land for potential drilling. But in 2007, the state decided that, absent new regulations for hydraulic fracturing, no new permits for natural gas wells would be issued. The moratorium continues to this day, even as Andrew Cuomo, the state’s governor, keeps promising that his Department of Environmental Conservation will produce new drilling rules—once its experts have had sufficient time to study the issue.

***It’s abundant and recoverable***

**Doran ‘12**

Kevin Doran, is an institute fellow and assistant research professor at the Renewable and Sustainable Energy Institute (RASEI), a joint institute of the National Renewable Energy Laboratory and the University of Colorado at Boulder. His research focuses on the legal, regulatory and public policy dimensions of energy development. Adam Reed is a research associate at RASEI. He researches and writes on the legal, policy, and regulatory issues surrounding the deployment of sustainable energy technologies.

Yale Environment 360, 13 Aug 2012, Natural Gas and Its Role In the U.S.’s Energy Endgame <http://e360.yale.edu/feature/natural_gas_role_in_us_energy_endgame/2561/>, jj

**The United States has won the lottery on natural gas**. According to the most recent estimates by the Energy Information Administration, **the U.S. has some 2,214 trillion cubic feet cubic feet of technically recoverable natural gas — enough to satisfy all of our natural gas demands for the next century at current consumption levels**. **The extraction of shale gas, enabled by technological advances such as hydrofracturing and horizontal drilling, has led the way in creating this largely unforeseen cornucopia. Domestic natural gas is now a cheaper fuel for electricity generation than coal** — long our go-to fuel for power around the clock — and emits roughly half the greenhouse gas emissions.

***Fracking DA’s are empirically denied***

**Weinstein ‘10**

Bernard L. Weinstein, Associate Director, Maguire Energy Institute at the Southern Methodist University's Cox School of Business, National Journal, 12-20-10, Is Natural Gas the Answer? Fears Over Fracking Overblown, http://energy.nationaljournal.com/2010/12/is-natural-gas-the-answer.php, jj

Irrational fears make up a considerable portion of the American Psychiatric Association’s Manual of Mental Disorders. It includes catoptrophobia (fear of mirrors), geliophobia (fear of laughter), and levophobia (bizarrely enough, a fear of things to the left side of the body). **Unfounded fears are bad enough when they impair an individual’s ability to function in the real world and even worse when they obstruct entire sectors of our economy. Today, America faces a growing threat to its economic recovery as propaganda-generated afflictions like “frackophobia**” (fear of hydraulic fracturing in natural gas production) **spread through the media and seeped into regulation and legislation**. For example, “**fear of fracking” has resulted in** a de facto moratorium on gas drilling in New York State. Public officials ranging from city council members across Texas, Pennsylvania, and Wyoming to federal regulators in the Obama administration are currently considering **new fracking regulations that threaten to bring the industry to a *standstill*.** As with other perceived risks, **we should be careful to keep those associated with energy development in perspective.** Though **the U.S. natural gas industry has safely managed the hydraulic fracturing process for more than 50 years**, environmental activists and alternative fuel lobbies have begun hyping its risks in recent months. Yet, **there is not one verifiable instance of properly performed hydraulic fracturing causing direct harm to communities or individuals.** Opponents claim that fracking fluids frequently migrate into local water supplies. But **of the nearly 100,000 natural gas wells drilled annually, water contamination occurs in only a handful of cases.** **In those rare instances, responsible companies have provided clean water and compensation to affected families**. **While the risks associated with hydraulic fracturing are minor, those associated with stymieing natural gas production are major. Natural gas production currently supports nearly 4 million jobs in the U.S. and adds $385 billion to our economy each year. Its growth potential is enormous, with large shale formations existing in virtually all regions of the country**. A Penn State study estimates **the Marcellus Shale gas reservoir could add $8 billion in economic value and 100,000 new jobs in Pennsylvania next year**. Over the past two years, **the 13,600 residents in Bradford County have enjoyed $300 million in lease bonuses and royalties—just one example suggesting the rewards from gas drilling far outweigh the risks**. A recent study by this author for Broome County, New York found that **shale gas drilling and production would pump $19 billion into the local economy over a ten year period while supporting 5600 much-needed jobs.** Production of every energy source involves some risks. **In view of historically high unemployment and empty state coffers, regulators and legislators need to carefully weigh the economic benefits from natural gas development against the environmental risks that are typically exaggerated by drilling opponents. Removing “frackophobia**” from the lexicon of the energy policy debate **is an imperative for assuring a robust future for the natural gas industry.** **This abundant domestic resource**, **if fully developed, can shrink our dependence on energy imports while simultaneously reducing greenhouse gas emissions because of its minimal carbon footprint. And America will be happier and more prosperous** if we pay more attention to geliophobia and less to frackophobia.

***No renewables tradeoff***

**Channell, et al**, 9/12/**12** (Jason, Director, Citi Investment Research & Analysis, previously: Executive Director at [Goldman Sachs](http://uk.linkedin.com/company/goldman-sachs?trk=ppro_cprof)¶ Executive Director at [Cheuvreux](http://uk.linkedin.com/company/cheuvreux?trk=ppro_cprof)¶ Executive Director at ABN AMRO Hoare Govett¶ Analyst at [Fidelity Investments](http://uk.linkedin.com/company/fidelity-investments?trk=ppro_cprof), timothy lam, Vice President, [Utilities](http://cleantuesday.asia/tag/utilities) & Alternative [Energy](http://cleantuesday.asia/category/categories/energy-categories), [Citi Research](http://cleantuesday.asia/tag/citi-research), HK-based [research](http://cleantuesday.asia/tag/research) [analyst](http://cleantuesday.asia/tag/analyst) covering the [utilities](http://cleantuesday.asia/tag/utilities), [solar](http://cleantuesday.asia/tag/solar) and alternative [energy](http://cleantuesday.asia/category/categories/energy-categories)sectors, and Shahriar Pourreza - Advisor at Citigroup Global Markets Inc, CitiResearch: “Shale & renewables: a symbiotic relationship,” <https://ir.citi.com/586mD%2BJRxPXd2OOZC6jt0ZhijqcxXiPTw4Ha0Q9dAjUW0gFnCIUTTA%3D%3D>, ts)

This analysis assumes that renewables and natural gas are in competition, chasing ¶ the same investment dollars in the energy sector. In our view, this analysis is overly ¶ simplistic. On the one hand, **natural gas and renewables play different roles in the ¶ energy mix; natural gas is a diversified fuel with a role in many economic sectors, ¶ from industry to transport, whereas modern renewable** energy investment **is ¶ primarily concerned with electricity** generation, and offers the potential for ¶ distributed generation (in the case of solar). Indeed, **there is no obvious negative ¶ correlation between the observed percentage of natural gas and renewables in the ¶ energy mix** (Figure 41) of various countries. ¶ Moreover, the assumption that gas-fired power is ‘clean’ enough to displace ¶ investment in renewable energy as a low-carbon energy source is questionable. ¶ While natural gas may be a cleaner burning fossil fuel than either coal or oil, the ¶ combustion of natural gas still emits a significant amount of carbon dioxide. ¶ Moreover, the additional ‘fugitive methane’ emissions make the extraction of shale ¶ gas, in particular, a substantial greenhouse gas emitter. Instead, our view is that **natural gas and renewable energy investment are naturally ¶ complementary** in the electricity-generation sector. Indeed, we believe that **an ¶ increase in gas-fired power might** ultimately **assist renewable energy in gaining ¶ penetration in electricity markets, through its ability to provide peaking power to ¶ offset the intermittency of renewable sources like wind and solar.**

***Warming is real, anthropogenic and reversible if we start mitigation now.***

**Nuccitelli 11** (Dana Nuccitelli is an environmental scientist at a private environmental consulting firm in the Sacramento, California area. He has a Bachelor's Degree in astrophysics from the University of California at Berkeley, and a Master's Degree in physics from the University of California at Davis. He has been researching climate science, economics, and solutions as a hobby since 2006, and has contributed to Skeptical Science since September, 2010., Updated 2011, Originally Posted 9/24/2010, “The Big Picture”, http://www.skepticalscience.com/big-picture.html)

**The Earth is Warming We know the planet is warming from surface temperature stations and satellites measuring the temperature of the Earth's surface and lower atmosphere**. We also have **various tools** which have **measured the warming of the Earth's oceans**. Satellites have measured an energy imbalance at the top of the Earth's atmosphere. **Glaciers, sea ice, and ice sheets are all receding**. **Sea levels are rising**. **Spring is arriving sooner** each year. **There's simply no doubt - the planet is warming** (Figure 1). Global Warming Continues And yes, **the warming is continuing**. **The 2000s were hotter than the 1990s, which were hotter than the 1980s, which were hotter than the 1970s**. 2010 tied for the hottest year on record. The 12-month running average global temperature broke the record three times in 2010, according to NASA Goddard Institute for Space Studies (GISS) data. Sea levels are still rising, ice is still receding, spring is still coming earlier, there's still a planetary energy imbalance, etc. etc. Contrary to what some would like us to believe, the planet has not magically stopped warming. Those who argue otherwise are confusing short-term noise with long-term global warming (Figure 2). Foster and Rahmstorf (2011) showed that **when we filter out the short-term effects of the sun, volcanoes, and El Niño cycles, the underlying man-made global warming trend becomes even more clear** (Figure 3). For as much as atmospheric temperatures are rising, the amount of energy being absorbed by the planet is even more striking when one looks into the deep oceans and the change in the global heat content (Figure 4). Humans are Increasing Atmospheric Greenhouse Gases **The amount of** **greenhouse gases in the atmosphere** - particularly carbon dioxide (**CO2**) - **has been rising steadily** over the past 150 years. There are a number of lines of evidence which clearly demonstrate that **this increase is due to human activities**, primarily burning fossil fuels. The most direct of evidence involves simple accounting. Humans are currently emitting approximately 30 billion tons of CO2 per year, and the amount in the atmosphere is increasing by about 15 billion tons per year. Our emissions have to go somewhere - half goes into the atmosphere, while the other half is absorbed by the oceans (which is causing another major problem - ocean acidification). We also know the atmospheric increase is from burning fossil fuels because of the isotopic signature of the carbon in the atmosphere. Carbon comes in three different isotopes, and plants have a preference for the lighter isotopes. So if the fraction of lighter carbon isotopes in the atmosphere is increasing, we know the increase is due to burning plants and fossil fuels, and that is what scientists observe. **The fact that humans are responsible for the increase in atmospheric CO2 is settled science**. The evidence is clear-cut. Human Greenhouse Gases are Causing Global Warming **There is overwhelming evidence that humans are the dominant cause of the recent global warming**, mainly due to our greenhouse gas emissions. **Based on fundamental physics and math, we can quantify** the amount of warming human activity is causing, and verify **that we're responsible for essentially all of the global warming over the past 3 decades**. The aforementioned Foster and Rahmstorf (2011) found a 0.16°C per decade warming trend since 1979 after filtering out the short-term noise. In fact we expect human greenhouse gas emissions to cause more warming than we've thus far seen, due to the thermal inertia of the oceans (the time it takes to heat them). Human aerosol emissions are also offsetting a significant amount of the warming by causing global dimming. **Huber and Knutti** (2011) found that human greenhouse gas emissions have caused 66% more global warming than has been observed since the 1950s, because the cooling effect of human aerosol emissions have offset about 44% of that warming. They **found that overall, human effects are responsible for approximately 100% of the observed global warming** **over the past 60 years** (Figure 5). **There are also numerous 'fingerprints' which we would expect to see from an increased greenhouse effect** (i.e. **more warming at night, at higher latitudes, upper atmosphere cooling) that we have indeed observed** (Figure 6). **Climate models have projected the ensuing global warming to a high level of accuracy, verifying that we have a good understanding of the fundamental physics behind climate change**. Sometimes people ask "what would it take to falsify the man-made global warming theory?". Well, basically it would require that our fundamental understanding of physics be wrong, because that's what the theory is based on. This fundamental physics has been scrutinized through scientific experiments for decades to centuries. The Warming will Continue We also know that **if we continue to emit large amounts of *g*reen*h*ouse *g*ases, the planet will continue to warm**. We know that **the climate sensitivity to a doubling of atmospheric CO2** from the pre-industrial level of 280 parts per million by volume (ppmv) to 560 ppmv (we're currently at 390 ppmv) **will cause 2–4.5°C of warming. And we're headed for 560 ppmv in the mid-to-late 21st century if we continue business-as-usual emissions**. The precise sensitivity of the climate to increasing CO2 is still fairly uncertain: 2–4.5°C is a fairly wide range of likely values. However, even if we're lucky and the climate sensitivity is just 2°C for doubled atmospheric CO2, if we continue on our current emissions path, we will commit ourselves to that amount of warming (2°C above pre-industrial levels) within the next 75 years. **The Net Result will be Bad** There will be some positive results of this continued warming. For example, an open Northwest Passage, enhanced growth for some plants and improved agriculture at high latitudes (though this will require use of more fertilizers), etc. However, the negatives will almost certainly outweigh the positives, **by a long shot**. We're talking **decreased biodiversity, water shortages, increasing heat waves** (both in frequency and intensity), **decreased crop yields** due to these impacts, damage to infrastructure, displacement of millions of people, etc. Arguments to the contrary are superficial One thing I've found in reading skeptic criticisms of climate science is that they're consistently superficial. For example, the criticisms of James Hansen's 1988 global warming projections never go beyond "he was wrong," when in reality it's important to evaluate what caused the discrepancy between his projections and actual climate changes, and what we can learn from this. And **those who argue that "it's the Sun" fail to comprehend that we understand the major mechanisms by which the Sun influences the global climate, and that they cannot explain the current global warming trend**. And **those who argue "it's just a natural cycle" can never seem to identify exactly which natural cycle can explain the current warming**, **nor** can they explain **how our understanding of the fundamental climate physics is wrong**. There are legitimate unresolved questions Much ado is made out of the expression "the science is settled." **The science is settled in terms of knowing that the planet is warming rapidly, and that humans are the dominant cause**. There are certainly unresolved issues. As noted above, there's a big difference between a 2°C and a 4.5°C warming for a doubling of atmospheric CO2, and it's an important question to resolve, because we need to know how fast the planet will warm in order to know how fast we need to reduce our greenhouse gas emissions. There are significant uncertainties in some feedbacks which play into this question. For example, will clouds act as a net positive feedback (by trapping more heat, causing more warming) or negative feedback (by reflecting more sunlight, causing a cooling effect) as the planet continues to warm? And exactly how much global warming is being offset by human aerosol emissions? These are the sorts of questions we should be debating, and the issues that most climate scientists are investigating. Unfortunately there is a there is a very vocal contingent of people determined to continue arguing the resolved questions for which the science has already been settled. And when climate scientists are forced to respond to the constant propagation of misinformation on these settled issues, it just detracts from our investigation of the legitimate, unresolved, important questions. Smart Risk Management Means Taking Action Pe**ople are usually very conservative when it comes to risk management**. Some of us buy fire insurance for our homes when the risk of a house fire is less than 1%, for example. When it comes to important objects like cars and homes, we would rather be safe than sorry. But **there is arguably no more important object than the global climate**. **We rely on the climate for our basic requirements**, like having enough accessible food and water. **Prudent risk management in this case is clear. The scientific evidence discussed above shows indisputably that there is a risk that we are headed towards very harmful climate change**. There are uncertainties as to how harmful the consequences will be, but **uncertainty is not a valid reason for inaction**. There's very high uncertainty whether I'll ever be in a car accident, but it would be foolish of me not to prepare for that possibility by purchasing auto insurance. Moreover, **uncertainty cuts both ways, and it's just as likely that the consequences will be worse than we expect** **as it is that the consequences won't be very bad**. **We Can Solve the Problem The good news is that we have the tools we need to mitigate the risk posed by climate change**. A number of plans have been put forth to achieve the necessary greenhouse gas emissions cuts (i.e. here and here and here). **We already have all the technology we need**. Opponents often argue that mitigating global warming will hurt the economy, but the opposite is true. Those who argue that reducing emissions will be too expensive ignore the costs of climate change - economic studies have consistently shown that mitigation is several times less costly than trying to adapt to climate change (Figure 7). This is why there is a consensus among economists with expertise in climate that we should put a price on carbon emissions (Figure 8). should US reduce emissions The Big Picture The big picture is that **we know the planet is warming, humans are causing it, there is a substantial risk to continuing on our current path**, but we don't know exactly how large the risk is. However, **uncertainty regarding the magnitude of the risk is not an excuse to ignore it**. We also know that **if we continue on a business-as-usual path, the risk of catastrophic consequences is very high.** In fact, **the larger the uncertainty, the greater the potential for the exceptionally high risk scenario to become reality**. We need to continue to decrease the uncertainty, but it's also critical to acknowledge what we know and what questions have been resolved, and that taking no action is not an option. The good news is that **we know how to solve the problem, and that doing so will minimize the impact not only on the climate, but also on the economy**. The bottom line is that **from every perspective - scientific, risk management, economic, etc. - there is no reason not to immeditately take serious action to mitigate climate change, and failing to do so would be exceptionally foolish**.