**Contention 1 is Fracking**

***Fracking is inevitable --- it’s just a question of who regulates***

**Skorton**, 9/24/**12** (David, president of Cornell University, also holds faculty appointments at Weill Cornell Medical College and the College of Engineering. Lifetime member of the council on foreign relations& Glenn Altschuler, Cornell's [Vice President for University Relations](http://www.cornell.edu/administration/)

We have spent our adult lives in higher education and write about it.Forbes: “Fracking: A Role for Universities,” http://www.forbes.com/sites/collegeprose/2012/09/24/fracking-a-role-for-universities/)

Last month in a [Washington Post column](http://www.washingtonpost.com/opinions/fracking-is-too-important-to-foul-up/2012/08/23/d320e6ee-ea0e-11e1-a80b-9f898562d010_story.html) **New York City Mayor** [Michael **Bloomberg**](http://www.forbes.com/profile/michael-bloomberg/), founder of Bloomberg Philanthropies, and George P. Mitchell, philanthropist and hydrofracking pioneer, **offered** their foundations’ **support to “organizations that seek to work with states and industries to develop common-sense regulations that will protect the environment—and ensure that the [fracking] industry can thrive.**” We urge other foundations—and government officials—to enlist universities in the development of evidence-based public policy and safer fracking operations.¶ ***We cannot put this genie back in the bottle***. **Fracking is already being carried out across the country.** And **shale basins have been identified on six continents, making fracking a truly global issue**. **The questions before us are not only whether to frack, but how, where and with what safeguards in place**.¶ **With natural gas supplies plentiful** for now **and prices** relatively **low, we have time to make sound decisions about our shale gas resources**. In creative partnership with government and industry, universities can help make sure we get it right.

***This has historically been the role of the States – best empirical models shows they have been extremely effective***

**Entine,** 5/15/**12** (Jon, Senior Fellow at the Center for [Health](http://www.forbes.com/health/) and Risk Communication and at STATS at George Mason University, Forbes, “Fracking Safety Improves Dramatically, Says Independent Study” <http://www.forbes.com/sites/jonentine/2012/05/15/fracking-safety-improves-dramatically-says-independent-study/>, ts)

**A team of researchers from UB,** [**University of Wyoming**](http://www.forbes.com/colleges/university-of-wyoming/) **and Penn State University examined violations at almost 4,000 natural gas wells in Pennsylvania between January 2008 and August 2011. The *peer-reviewed study* found approximately two-thirds of the 3,000 violations were administrative,** 38 percent were environmental, and only 25 were deemed “major,” defined as site restoration failures, serious contamination of water supplies, major land spills, blowouts and venting and gas migration. The majority were “due to operator error, negligence, or a failure to follow proper procedures when drilling,” according to the report. “This suggests that the industry has room for improvement, and the frequency of environmental events can be reduced,” the authors wrote. **The safety profile of hydraulic fracturing has improved dramatically in Pennsylvania since 2008. Environmental violations as a percentage of wells drilled dropped by more than half over the course of the years examined. The study—the first based on *comprehensive data* rather than on anecdotal claims or selective reports—contradicts claims by anti-fracking groups** that shale gas extraction is poorly regulated in Pennsylvania and that the environmental dangers are increasing. “**This study presents a compelling case that state oversight of oil and gas regulation has been effective**,” said University of Wyoming economics professor Timothy Considine, who was the lead author. “**Regulatory learning and technological progress has been considerable** over the past four years.” “While prior research has anecdotally reviewed state regulations, **now we have comprehensive data that demonstrates, without ambiguity, that state regulation** coupled with improvements in industry **practices results in a low risk of an environmental event** occurring in shale development, and the risks continue to diminish year after year,” Considine added.

**Thus, the Plan**

***The United States federal government should remove the Environmental Protection Agency’s New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants Reviews for natural gas production.***

**Advantage 1 is Methane**

***New federal emission regulations on fracking issued by the EPA – these will be insufficient to solve***

**Groeger 12** Lena Groeger, Alternet, previously worked at Scientific American, where she wrote about topics in science and health. Prior to that she was at Wired, where she designed infographics and reported on technology and national security, April 19th 2012, http://www.alternet.org/story/155062/epa's\_first\_fracking\_rules\_seen\_as\_limited\_and\_delayed?akid=8636.1080031.EzL73\_&rd=1&t=13&paging=off

**The *E***nvironmental ***P***rotection ***A***gency **issued the first-ever national air pollution regulations for fracking** on Wednesday. First proposed in July 2011, the final rules have been welcomed by environmental groups as a much-needed initial move in reducing pollution and protecting public health from the toxic chemicals involved in the oil and natural gas drilling process. But **many cautioned it was just a first step**. “***It sets a floor*** **for what the industry needs to do**,” said attorney Erik Schlenker-Goodrich of the Western Environmental Law Center. “**The reality *is we can do far better***.” Over the past few years, **more information has come out about fracking’s potential harms to the environment** and human health, **particularly relating to the risk of groundwater contamination**. In addition to the many potentially toxic components of the highly pressurized fluid injected into the ground during the natural gas drilling process, fracking can also release cancer-causing chemicals like benzene and greenhouse gases like methane into the air. The federal government has made moves to tighten regulations, and we’ve chronicled the history of those regulations. **The EPA’s new rules don’t cover most of those issues**. Instead, they address a single problem with natural gas: air pollution. “**These rules do not resolve chronic water, public health and other problems associated with fracking and natural gas**,” Schlenker-Goodrich said. **The agency is *actually barred* from regulating the impact of fracking on groundwater because,** in 2005, **Congress exempted fracking from the Safe Water Drinking Act. Congressional proposals to give the EPA more oversight have so far failed.** With the new rules on air pollution, the EPA rejected an industry request to exempt some wells with low emissions of toxic compounds but did give drilling companies more time to comply. Notably, **the final version provides a two-and-a-half-year transition period** (rather than the 60 days in the original proposal) **that gives drilling companies until 2015 to comply** with the strictest regulations. The industry lobbied hard for the delay, and its reaction to the rules have been mixed. A spokesman for the American Petroleum Institute, the largest oil industry trade group, said it is still reviewing the new rules but said it's happy with changes from the original proposal that will allow companies to “continue reducing emissions while producing the oil and natural gas our country needs.” Another industry group told The New York Times that the rules are too strict and could “make exploring in new areas cost-prohibitive.” **A key rule targets one large source of air pollution** — **the burst of gas released during the first few days after a well is first tapped but before production begins**. **The EPA requires that companies start using “green completions,” a technology that captures the released gas and fumes in tanks and transports them via pipelines to be sold as fuel.** (The Natural Resources Defense Council has a good breakdown of the process). Many drilling companies already use green-completion systems. **One natural-gas company recently told Bloomberg that the system doesn’t cost the company “any more than just venting the gas into the atmosphere**.” The EPA says that once companies buy the necessary equipment to separate and collect the released gas, they could actually make up to $19 million a year selling the captured gas.

***The new EPA rules are comparatively worse than state regulations --- they encourage companies to use outdated technology which increases methane emissions and causes runaway warming – No federal regulations will encourage States modeling resulting in a race-to-the-top***

**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

1) Cost-Benefit Analysis Has Flawed Assumptions EPA estimates the total annualized engineering costs will be $740 million for the proposed NSPS and $16 million for the proposed NESHAP. However, the Agency claims that these costs will be offset by controls mandating the capture of natural gas that industry has been emitting and the subsequent sales of the captured natural gas. Specifically, the Agency claims the capture of 3.4 million tons of recovered natural gas with a benefit of $30 million annually. This approach is flawed for several reasons. First, EPA assumes that only a small percentage of facilities are capturing this vented gas and thus creates an economic benefit on a premise that is likely already occurring in situations where this practice is feasible. Furthermore, **the assumption that a government agency possesses more industry knowledge on how to create profits from technology investments is flawed**. If one believes in efficient markets, one has to then assume that any **profit-inducing technologies would be implemented quickly by industries in an attempt to create higher profits and a larger share of the market**. **It would make no logical sense for companies to ignore technology that allows them to earn higher profits through efficiency**. Second, **these rules divert investments from capital and energy development into regulatory compliance efforts, leading to less energy production in natural gas**. **The notification, record keeping, monitoring, reporting, and performance testing requirements are burdensome to industries and the state regulators required with process the paperwork**. They also do not take into account that **many facilities are in remote and unmanned locations, making paperwork compliance all the more difficult**. **These provisions require significant administrative costs with little impact on actual emissions reductions**. **These costs** – both from diverted resources and administrative costs – **are not figured into the cost-benefit analysis**. Third, EPA’s model is based on an assumed wellhead price of $4/thousand cubic feet (Mcf) for natural gas. EPA’s model shows that “$1/Mcf change in the wellhead price causes a change in estimated engineering compliance costs of about $180 million,” with annualized engineering costs increasing to about $140 million under a $3/Mcf price and decreasing to about -$230 million under a $5/Mcf price. As of September 2011, two months preceding EPA’s analysis, wellhead price fell to $3.70/McF. Based on the Agency’s own analysis, this should result in $125 million in additional cost. Historically, wellhead prices have fluctuated substantially, with decade-averages of $1.92/McF in the 1990s, $5.26/McF in the 2000s, and $4.16/McF today. This includes dramatic price shifts from year to year during the past decade, as seen below: 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 3.68 4.00 2.95 4.88 5.46 7.33 6.39 6.25 7.97 3.67 4.16 %change 8.7% 26.2% 65.4% 11.9% 34.2% 12.8% -2.2% 27.5% -54% 13.4% Given these stark year-to-year changes, placing an accurate estimate on future compliance costs is difficult. With abundant supplies much of these price swings can be mitigated. Therefore it has been argued that stabilization in prices has come with improved technologies in recent years. In some ways this is correct, which is good for consumers. However, regulating on this premise is flawed because it assumes a constant state of production from producers. Many of the resources for the two sectors are exchangeable (equipment and labor) and studies are showing that in recent years natural gas has not met the break-even prices for companies to produce it. If companies are able to obtain greater profits from the exploration of oil, they will pursue that avenue, and indeed we are already observing this shift. Natural gas drilling is down 10% while oil drilling is up 80%, and earlier this year, more companies were drilling for oil than natural gas – the first time since 1995. Moreover, more regulations on the natural gas sector could affect other regulations currently being promulgated by EPA. A recent study of the state of natural gas in the nation found that “the price of natural gas has a very significant impact on the competitiveness of some U.S. manufacturing industries”. This ties directly into EPA regulations aimed at curbing emissions from coal and petroleum based sources, such as Boiler MACT. It has been acknowledged by the Agency, industry, and outsiders that a switch to natural gas may be the only option for plants faced with either adding expensive pollutant capturing technologies, fuel switching, or closure. **More stringent regulations on the natural gas industry could have an unintended consequence of raising residential energy costs** from natural gas by driving up the production of oil, while allowing demand for natural gas to catch up with supply. Lastly, in its cost-benefit analysis, **EPA has overstated the environmental benefit that would be derived from regulation**. Although EPA’s analysis shows that the proposed changes will result in VOC emissions reductions of 540,000 tons, the Agency’s own data indicates that oil and gas production represents just 2.3 percent of VOC emissions—indicating that the sector is already a low source of these pollutants. Furthermore, while the proposed changes would reduce air toxic emissions by 38,000 tons, the Agency itself writes that the **status quo emissions levels are within the acceptable range**. As such, EPA should evaluate whether the stated environmental benefits are appropriately balanced with the cost to industry and new compliance requirements. 2) **Methane Emissions Reductions Should Not Be Cited In Cost Savings** In its cost-benefit analysis, EPA claims that the resulting reduction in methane will yield about $1.6B in public health and environmental benefits; however, because methane is not a VOC or air toxic—the two types of emissions targeted by the proposed revisions—the decision to cite it as a co-benefit is questionable. However, **even if methane emissions reductions were to be cited as a co-benefit, EPA’s analysis of its environmental impact is flawed**. Namely, when detailing the impact of methane on anthropogenic global warming, no sense of proportion or the scope of its impact is provided Instead, EPA lists problems occasioned by anthropogenic global warming such as increasing ocean temperatures, increasing air temperatures, and rising sea levels, with the assumption then being that the methane emissions decrease created by this rule will have an impact on these issues. However, by comparing the claimed methane reductions with proposed greenhouse gas reductions measures of a much greater scale, it is apparent that the proposed rule will have a negligible effect on climate issues. **Methane is a potent greenhouse gas and as EPA explains, “Methane**, in addition to other GHG emissions, **contributes to warming of the atmosphere, which, over time, leads to increased air and ocean temperatures**…” EPA however, does not model the temperature impact this rule will have. In calculating any impacts of reduced greenhouse gases, this is an unavoidable step. EPA’s failure to do so is arbitrary and capricious. It is an exceedingly great omission for EPA not to include the temperature impacts of this rule because EPA has access to and has paid for multiple models to aid this very kind of decision. One option is the MAGICC/SCENGEN models and another is the Mini-Climate Assessment Model (MiniCAM). Were one to employ these models, the impact of the proposed rule would be shown to be negligible. The MAGICC model would have shown an exceedingly small temperature impact created by this rule—possibly on the order of a couple thousandth of a degree Celsius by the year 2010. For comparison’s sake, the 2009 Waxman-Markey bill—which would have required an 80 percent reduction in greenhouse gas emission by 2050—would only result in a temperature impact of 0.05 C by 2050 and 0.112 C by 2100. If an 80 percent reduction in total U.S. greenhouse gas emission would only result in 0.112 C of temperature avoided, reducing methane emissions by 65 MMT CO2e1 out of a total of 6,633 MMT CO2e total U.S. annual emissions would be much less. This rule will reduce U.S. GHG emissions by less than one percent, compared to WaxmanMarkey’s 80 percent reduction by 2050. Waxman-Markey’s temperature impact was exceedingly small. It is arguable that a 0.112 C impact would result in climate impacts. But reducing U.S. greenhouse gas emissions by 1 percent would have an even smaller impact, possibly around two-thousandths of a degree Celsius. A two-thousandths of a degree change will not have climate impacts. Instead of using the models it paid to develop to estimate temperature impacts, EPA has opted to use the “social costs of carbon” in its cost-benefit analysis. However, EPA estimates of the social costs of carbon are arbitrary and capricious, because there is no evidence that these values are real. Furthermore, using the social costs of carbon is a misnomer, as not all greenhouse gases contain the element of carbon. Additionally, from a policy standpoint, **overregulation of the natural gas industry can have adverse effects on any efforts to curb CO2 emissions**. Melanie Kenderdine, executive director of the MIT Energy Initiative and a co-author of a recent MIT report on the natural gas industry, noted that **policies supporting the conversion from traditional fossil fuels to cleaner-burning natural gas “should be pursued as the only practical option for near-term, large-scale CO2 emissions reductions.**” 3) EPA Claims of Positive Health Benefits Lack Supportive Data EPA itself admits that the variances in well locations and the localized nature of air quality responses pose difficulties in modeling public health impacts. EPA writes: With the data available, we are not able to provide credible health benefit estimates for the reduction in exposure to HAP, ozone and PM (2.5 microns and less) (PM2.5) for these rules, due to the differences in the locations of oil and natural gas emission points relative to existing information and the highly localized nature of air quality responses associated with HAP and VOC reductions. This is not to imply that there are no benefits of the rules; rather, it is a reflection of the difficulties in modeling the direct and indirect impacts of the reductions in emissions for this industrial sector with the data currently available. In addition to health improvements, there will be improvements in visibility effects, ecosystem effects and climate effects, as well as additional product recovery. Supportive data prior to proposing new regulations should be prerequisite, and the mere assertion that there will be health benefits is insufficient proof. According to EO 12866, “each agency shall base its decisions on the best reasonably obtainable scientific, technical, economic, and other information concerning the need for, and consequences of, the intended regulation,” while Executive Order 13563 states that the regulatory system must be based on the “best available science.” EPA’s claim of health improvements without credible health benefit estimates violates the spirit of EO 12866 and EO 13563. In EPA’s words, “we do not have sufficient information or modeling available to provide quantitative estimates for this rulemaking…” EPA lists a catalogue of horribles, but that does mean the rule will impact adverse health outcomes in any meaningful way. In fact, because EPA does not quantitatively assess the health effects, it is prima facie evidence that these regulations will not create positive health benefits. 4) Voluntary Programs to Control Emissions Already Exist According to EO 13563, to the extent possible, “each agency shall identify and consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public.” As such, EPA should consider whether the existing programs to control natural gas emissions are sufficient to achieve the desired result without the need for new regulation, or whether existing voluntary programs or incentives could be improved to achieve these results. A prime example is the Natural Gas STAR Program, which EPA has overseen since 1993. Natural Gas STAR is a voluntary partnership that encourages oil and natural gas companies to adopt emissions curbing technologies in a cost-effective and flexible way. EPA touts the programs successes on their website: “Since 1993, the Program's domestic partners have eliminated more than 904 billion cubic feet (Bcf) of methane emissions through the implementation of approximately 150 cost-effective technologies and practices.” Both long- and short-term achievements have been applauded by the Agency: “… for 2009, Natural Gas STAR partners reported domestic emissions reductions of 86 Bcf. These methane emissions reductions, voluntarily undertaken by Natural Gas STAR partner companies, have cross-cutting benefits on domestic energy supply, industrial efficiency, revenue generation, and greenhouse gas emissions reductions. In the 2009 reports, partners reported methane emission reductions resulting from the implementation of 82 technologies and practices, including one new activity.” A stated goal of the regulations is an annual reduction of 3.4 million tons of methane, or the equivalent of 65 million metric tons of carbon dioxide equivalent (CO2e). This goal – equivalent to the annual methane emissions of all forest fires globally – is achievable through voluntary means. Through the voluntary STAR Program, companies have been able to meet more than half of that, with the avoidance of 34.8 million tons CO2 equivalent and the carbon sequestration of 7.4 million acres of forest in 2009 alone. An important point is that year after year improvements are occurring. In 2003, the STAR program avoided a cumulative 350 billion cubic feet (BcF). This number rose to 600 BcF in 2006 and over 900 BcF in 2009. **With reduction and sequestration accomplishments already on the rise through flexible, voluntary programs, the need for command and control style regulations is questionable**. 5) **States are in a Better Position to Regulate** Through both their proximity to the affected facilities and their intimate knowledge of local resources, states are in a better position to regulate toxic **air emissions than a federal agency**. In fact, **the effectiveness of states’ current regulatory efforts have been lauded by a government task force** charged with reviewing the state of the natural gas sector. The Natural Gas Subcommittee of the Secretary of Energy’s Advisory Board has been tasked, and is in the midst of recommendations to improve the safety and environmental performance of hydraulic fracturing. In testimony before the Senate Energy and Natural Resources Committee, all four representatives from the subcommittee on natural gas remarked on the quality of the states’ regulatory process. **Daniel Yergin, Chairman of IHS Cambridge Energy Research Associates and member of the subcommittee noted** that he was “very impressed by the extent and the seriousness of the states [regulations], and as I said before, there is a tendency to assume that this isn’t going on but it’s been going on for decades. **The states are the leader and bring that long experience to it.” When asked if there is any danger in the federal government stepping in to regulate areas that have historically been regulated by states, Yergin commented: “Certainly you can end up having a kind of super structure on top of a superstructure that would make investment more difficult, would take a much longer time to get things done, and move farther away from communities**.” Kathleen McGinty, Former Secretary of the Pennsylvania Department of Environmental Protection and subcommittee member remarked that “there was nothing in the testimony we heard, the substance we focused on, or what needs to be done that lead to a glaring conclusion that there is an actor missing from the [regulatory] scene.” Mark Zoback, Professor of Geophysics at Stanford University noted that the subcommittee recognizes that “the differences geologically from place to place put the states in the right position to do this because we did not see a one size fits all solution. That’s why we endorse **groups like STRONGER** – to ***allow the states to learn from each other***…” STRONGER – the State Review of Oil and Natural Gas Environmental Regulation – is a not-forprofit organization whose mission is the scientific peer-review of state regulations around oil and natural gas. “There are other important mechanisms for improving the availability and usefulness of shale gas information among various constituencies. The Subcommittee believes two such mechanisms to be exceptionally meritorious (and would be relatively inexpensive to expand).” **State reviews are conducted by a state regulators, environmental organizations, and industry representatives and *facilitate the sharing of best practices*** (environmental protections strategies, regulations, technical aspects, etc.) ***among states***. Both the Environmental Protection Agency and the Department of Education have supported STRONGER. ***State***-**focused programs like this should be supported, not superseded, by the federal government.** The kind of emissions controls employed by facilities are dependent on a variety of factors, including the age, location, and size of a facility. In this case, ***flexibility* is warranted and in fact *can yield the same reductions in a more cost-effective fashion.*** Indeed, as enumerated above, **the highly localized nature of air quality responses and the variances in well locations would make states a better candidate to regulate than a federal agency.** 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.” 8) Regulations May Adversely Impact Workplace Safety Instead of imposing emissions limits for industry to attain, as the CAA dictates, EPA is attempting to specify a work practice in the form of “green completions” for hydraulic fracturing. However, according to EO 12866 and EO 13563, which reaffirmed the former, regulations should “specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt.” Furthermore, the Western Energy Alliance indicates that EPA’s proposed rule may have the unintended effect of reducing workplace safety. “Rather than petroleum and environmental engineers making the determination of how best to safely meet emissions reductions standards given the technical situation in the field,” the Alliance notes that the Agency may be prescribing work practices that may not be sanctioned or recommended by industry experts. EPA should consider whether an overly prescriptive approach that places constraints on industry-tested practices is warranted. SUMMARY OF POINTS TO CONSIDER: In summary, we ask EPA to carefully consider these points when finalizing regulations:  The premise of the regulation assumes that markets have failed to properly incentivize industry to contain emissions, yet the cost-benefit analysis predicts that the regulatory change will result in significant cost savings to industry through efficiency. These are incongruous positions.  The agency’s assumed price for natural gas does not reflect the fluctuating nature of that market’s prices.  New regulations on natural gas production and supply could have the unintended effect of incentivizing industry to shift its resources toward oil development, which is a related capability. This shift could have negative consequences for EPA’s other air quality proposals, such as Boiler MACT and greenhouse gas regulations.  **Cost-savings and environmental benefits resulting from claimed methane emissions reductions are overstated** and do not correspond to the stated intent of the proposed rule.  According to the Agency, its analysis of stated public health benefits lacks substantive scientific data.  **Regulating industry now ignores the significant progress toward emissions reductions that have been made** through voluntary programs, such as the Agency’s own Natural Gas STAR program. **State regulatory agencies share EPA’s interest in protecting public health and improving air quality, and in most cases are better endowed to respond to these challenges**. Programs like the State Review of Oil and Natural Gas Environmental Regulations (STRONGER) provide peer-review of state regulatory plans, facilitate continued improvements through the communication of best practices between states, and allows greater collaboration between government, industry, and the public than the federal regulatory process.  **The** proposed **rule**, as written, **may have the unintended consequence of disincentivizing operators from upgrading to new equipment that will be subject to the new maximum attainable control technology**.  Alternatives to the proposed regulation—including providing positive economic incentives to industry—were not evaluated in the cost-benefit analysis.  The proposed rulemaking may have the unintended consequence of reducing workplace safety by specifying behaviors for industry to adopt that may differ from practices recommended by experts.

***EPA regulations will be a ceiling that locks-in current regulations and crowds out state race-to-the-top – Prefer our evidence – it uses empirical models***

**Adler 06** – Jonathan H. Adler, Professor of Law and Co-Director, Center for Business Law and Regulation, Case Western Reserve University School of Law, “WHEN IS TWO A CROWD? THE IMPACT OF FEDERAL ACTION ON STATE ENVIRONMENTAL REGULATION”, Harvard Environmental Law Review, May 1st 2006, http://www.law.harvard.edu/students/orgs/elr/vol31\_1/adler.pdf

Just as federal action may indirectly encourage greater state regulatory activity, **federal action may discourage state regulatory action**. **This can occur in at least two ways. First, the adoption of a federal regulatory standard may “signal” that more stringent state regulations are unnecessary**. **In effect, the federal standard may be seen as evidence that a given level of regulatory protection is sufficient to safeguard relevant public interests, and more stringent measures *are unnecessary*.** As a result, **the adoption of a *federal regulation*** **may induce state policy-makers to adopt** ***comparable*** **state protections. In addition, the adoption of a federal regulation may *crowd out* state regulatory measures by reducing the net benefits of additional state measures.** **As a result, the existence of federal regulation may *discourage* the adoption of additional state-level regulatory protections in the future. The potential for federal regulatory measures to *reduce*** the level of **state regulatory activity is significant because it challenges the prevailing assumption that the adoption of a federal regulatory standard raises, or** at least **maintains, the aggregate level of protection nationwide**. 116 **Many environmental analysts,** for example, **suggest that the federal government should adopt a regulatory floor**, **but allow states to implement federal standards and adopt more stringent measures of their own**. 117 **The general belief is that this will maximize the extent of environmental protection. Yet if the adoption of federal regulatory standards can induce states to adopt *less protective* environmental measures** than they would otherwise have adopted, **the net benefits of a federal floor will be less than traditionally assumed, and in some states it will actually result in *a net reduction* in the aggregate level of environmental protection**. Indeed, it is possible that the net result of a federal regulatory floor, over time, could be the maintenance of lower levels of environmental protection than would otherwise have been adopted. Even if such effects are unlikely, **federal policy-makers should consider these possibilities when assessing the likely costs and benefits of federal action.** 1. Signaling Just as federal attention to a given environmental concern may increase the demand for state-level action, **the adoption of a given federal standard may send a signal that discourages the adoption or maintenance of more protective state regulations. Specifically, the adoption of a given regulatory standard by a federal agency sends a signal that the standard is worthwhile.** 118 **Among** other **reasons for this effect is that federal policy-makers,** particularly federal agencies, **are presumed to have substantial technical expertise**. **Thus, their actions may convince state policy-makers** (or their constituents) **that additional safeguards are “unnecessary” or that the benefits of more stringent regulatory protections are not worth their costs**. The magnitude of this effect is likely to correspond with the magnitude of the difference between the relevant federal and state standards**. In this way, federal standards can discourage state policy-makers from adopting and maintaining more stringent measures of their own, even where such measures could be justified.** **As a practical matter, the federal *“floor”* may become a *“ceiling”* as well. This effect is *not merely hypothetical.* There are *numerous examples* of state legislation designed to prevent state environmental agencies from adopting regulatory standards that are more stringent than federal rules**. 119 Between 1987 and 1995, **nearly twenty states adopted at least one statute limiting the ability of state agencies to adopt regulatory controls more stringent than relevant federal standards**. 120 Some states focus on a given environmental concern, while others have general prohibitions against the adoption of any environmental rules more stringent than applicable federal standards. 121 New Mexico and Colorado, for example, have statutes prohibiting the promulgation of air pollution controls more stringent than those required by federal law. 122 Virginia law bars state regulatory authorities from requiring greater amounts of water treatment than mandated under the federal Clean Water Act (“CWA”). 123 Other states have general prohibitions against agency promulgation of environmental rules more stringent than federal law. 124 The existence of statutes barring state regulatory agencies from adopting more stringent regulations may be evidence of a greater hostility to environmental protection in some state legislatures than in Washington, D.C. Yet such laws may also be a rational response to the signal created by the adoption of a federal standard at a given level, particularly insofar as state policy-makers conclude that their federal counterparts have greater expertise and understanding of relevant environmental concerns. Information is costly, and the knowledge and expertise necessary to determine a given level of protection may tax the resources of state governments. Therefore, deferring to federal policy judgments by responding to the signal of a federal standard may enable state policy-makers to economize on information and policy development costs. 125 On the other hand, **the localized nature of much environmental knowledge and expertise could suggest that signaling *may systematically encourage less optimal state-level regulation to the extent that federal standards fail to take local needs and variation into account.*** 126 Some state laws may address this concern, however, as they allow state agencies to adopt more protective measures where local conditions warrant. 127 There are several reasons why this signaling effect may be of concern. First, and perhaps most important, **the existence of a signaling effect that reduces the level of state regulations below what they would otherwise be could reduce the net benefits provided by federal regulations.** When the federal government adopts a federal regulatory standard, this will increase the level of regulation in states that have lower levels of regulation. At the same time, it will lower the level of regulation in any state that adopts laws barring the promulgation of regulations more stringent than the federal standard. The net effect of such signaling is represented in Figure 2 above. States A and B have regulatory standards (QAReg and QBReg , respectively) less stringent than the federal standard (QFReg ). State C, on the other hand, has a regulatory standard (QCReg ) greater than the relevant federal standard. **Adoption of the federal regulatory standard increases the aggregate level of regulation by a quantity equal to the sum of the difference between the federal standard and the lower state standards** ((QFreg – QAReg ) + (QFreg – QBReg )). The net effect of the federal standard may be lower than this, however. If State C adopts a law prohibiting state standards that exceed relevant federal requirements, the aggregate level of regulation will be reduced by the amount to which State C’s standard exceeded the federal standard (QCreg – QFReg ). Thus, the net effect of the federal standard will be the extent to which the increase in regulation in States A and B exceeds the reduction in State C ((QFReg – QAReg ) + (QFreg – QBReg ) – (QCreg – QFReg )). In the unlikely event that the reduction in regulation in State C exceeds the increase in regulation in States A and B, the adoption of a federal standard could actually result in a net reduction in the aggregate level of regulation. **There are other reasons to be concerned about a signaling effect. Insofar as federal standards are not based upon accurate, up-to-date scientific assessments of environmental problems**, 128 ***and such information is not available to state and local policy-makers, the federal regulation may have an even greater distorting effect on state priorities***. **Such laws may also serve to shift effective control over environmental priorities from the state to the federal level.** 129 Of course, to the extent federal policy-makers are likely to adopt quantitatively or qualitatively superior regulatory standards, the signaling effect may have a positive effect on regulatory policy. Insofar as there are welfare benefits from regulatory uniformity, there could be additional welfare benefits to the extent a signaling effect reduces regulatory variability across states. 130 The importance of signaling is not that it necessarily results in less optimal regulation. Rather, the primary importance of the signaling effect is that it often reduces the net benefit provided by the adoption of a federal regulatory standard. Taking this indirect effect of federal regulation on state regulatory choices into account will likely improve the quality of environmental policy-making. 2. ***Crowding Out*** **A second potential negative indirect effect of federal regulation on state regulatory choices is crowding out**. **This occurs because federal regulation may serve as a substitute for state-level regulation, thereby reducing the benefits of adopting or maintaining state-level protections**. Insofar as voters in a given state demand a certain level of environmental protection, there is no reason to expect states to duplicate federal efforts when a federal program satisfies that demand, particularly if a state has not already created such a program. If the federal floor is greater than or equal to the level of environmental protection demanded by a state’s residents, that state has no reason to adopt environmental regulations of its own once the federal government has acted. To the extent that this effect occurs, **it is separate from—perhaps even in addition to—the signaling effect described above.** The claim here is not simply that states regulate less than they would absent federal regulation—although this claim is almost certainly true. Rather, the claim is that **some states that would adopt regulations more protective than the federal floor, absent the imposition of federal regulation, have not done so due to federal regulation and may not do so in the future. If this hypothesis is correct, the net effect of federal environmental regulation in at least some states *could be less environmental protection than would have been adopted had the federal government not intervened***. To see how this could occur, **recall that the demand for environmental regulation in any given jurisdiction tends to increase over time** as wealth, technical capability, scientific knowledge, and environmental impacts increase. 131 **In any given state** (as in the nation as a whole), **there is an initial period** (“Period A”) **during which the demand for a given type of environmental protection is relatively low. The costs of adopting environmental regulations in this period are greater than the benefits of adopting any such protections**. These costs include the costs of developing, drafting, and passing legislation; the costs of creating a new policy program, drafting and implementing regulations, defending the regulations from any potential legal or administrative challenges, creating a means to monitor and enforce regulatory compliance; and so on. In addition, there are opportunity costs of devoting state resources and political capital to the cause of environmental protection as opposed to some other policy goal. As discussed earlier, **the demand for environmental protection has tended to increase over time along with increases in living standards.** 132 At the same time, **increases in technical knowledge and administrative efficiency may lower the costs of a given regulatory program. Eventually, a state will enter a second period** (“Period B”) **in which the benefits of a given environmental regulatory program are greater than the costs of initiating, implementing, and operating such a program. Absent any federal interference, the hypothetical state will not adopt environmental regulations in Period A, but will adopt such regulations in Period B**. See Figure 3. This is the environmental transition discussed in Part I. In Period A, the demand for environmental protection is insufficient to justify the costs of implementing environmental protection measures. By Period B, however, the demand for environmental protection has risen due to increases in wealth and knowledge, among other factors. At the same time, increases in technical capacity and scientific understanding have reduced the cost of adopting environmental protections. As a result, in Period B a state will adopt QB amount of environmental protection. 133 The timing of Period A and Period B will vary from state to state. **This is clearly the case as different states have enacted different environmental regulatory measures at different times—some before the adoption of federal environmental regulation, some after, and some not at all. Looking at the history of various environmental concerns, such as *air quality,*** water quality, or wetlands, **it is clear that many states moved from Period A to Period B for these environmental concerns at various times prior to the onset of federal regulations in the 1970s. In many other states, however, a federal regulatory floor was adopted before the onset of Period B. For states that went through their environmental transition and entered Period B prior to the enactment of federal environmental protection, whether the adoption of a federal regulatory floor increased the aggregate level of environmental protection in that state depended upon whether preexisting state policies offered greater or lesser levels of protection than the relevant federal policies.** For states in which the onset of Period B begins after the adoption of federal regulations, the enactment of a federal regulatory floor will, at the time of enactment, increase the aggregate level of environmental protection in that state. However, this may not be the case over time. **In states that desire a greater level of protection than that provided by the relevant federal regulations, it is not clear that the existence of the federal regulatory floor will result in an equal or greater level of protection than would be adopted were it not for the federal regulations. This is because federal regulation will, to some extent, act as a substitute for state regulation**. **As a result, the adoption of federal regulation has the potential to reduce the demand for state regulation and, in some instances, even result in less aggregate regulation in a given state than would have been adopted absent federal intervention. In short, federal regulation can crowd out state regulation.** The potential for such a crowding-out effect is illustrated in Figure 4. The existence of federal regulation will reduce the demand for state regulation by an amount equal to the extent to which federal regulation is a substitute for state regulation of the same environmental concern (QFReg ). This substitution effect will reduce the net benefit of adopting state-level environmental regulations from OCQB to OC’Q’B . By reducing the net benefits of state-level environmental regulation in this manner, federal regulation has the potential to crowd out state-level environmental protections, even if the quantity of environmental protection demanded in the state is greater than that provided by the federal government. In such cases, the aggregate level of environmental protection will be lower with federal regulation than it would be without it. A key assumption in this analysis is that there are significant fixed costs to the adoption of environmental protections (or, for that matter, any regulatory program). In some states, the additional benefits of adopting more stringent regulations on top of the federal requirements will more than offset the costs of adopting the new program. In these states the fixed costs of creating a program plus the operating costs are less than the expected marginal benefits from the additional margins of regulation. However, it seems likely that there are at least some states in which the aggregate net benefits of regulation at a level more protective than the federal standard are greater than the costs, but where the net benefits of additional regulation above the federal floor are less than the costs of adopting such additional regulations. In other words, if the net benefits of adopting state regulations alone (OCQB ) are greater than the costs of adopting such regulations (CReg), but the net beneªts of adopting such regulations given federal regulations are already in place (OC’Q’B ) are less than CReg, then the presence of a federal regulatory ºoor will produce a lower level of environmental protection than were that ºoor not to exist. 134 In this latter situation, one would not expect the state to regulate, even though the amount of regulation demanded in the given state is greater than that provided by the federal government. While federal regulation creates a ºoor, raising the regulatory baseline, it does not reduce the ªxed costs of policy change. If anything, it may increase the opportunity costs for state policy-makers who devote their political capital to the environmental resource at issue rather than another environmental concern in which the federal government is not active. Federal regulation does, however, reduce the beneªts of state regulation, and may do so signiªcantly, making state-level initiatives less attractive to state policy-makers. This theory is based on several premises and observations about the political economy of policy-making. First, environmental regulation, like most forms of regulation or other government action, experiences diminishing marginal beneªts and increasing marginal costs. That is, the marginal environmental gains from each additional increment of regulation will tend to be less than the gains from the preceding increment. Thus, when the federal government establishes a ºoor, it has likely displaced those state efforts that would be most cost-beneªcial. (This has the effect of shifting the demand curve for state regulation to the left, reducing the net bene- ªts of state regulation.) Second, the political process imposes substantial transaction costs on the creation (or elimination) of new government programs, and these costs are relatively ªxed such that they do not vary with the size of the program in question. The most obvious example of such transaction costs is the existence of so-called “vetogates” 135 that determined minority interests can use to prevent the adoption of policies that enjoy majority support. 136 The existence of these vetogates means that many policy changes must have supermajority support before they are enacted—or at the very least require the expenditure of substantial amounts of political capital by their proponents (as a means of purchasing supermajority support). 137 The fragmentation of policy-making authority across branches of government adds to the difªculty of adopting new policies. These obstacles may also be particularly large in highly complex policy areas like environmental protection. 138 Third, policy-makers are, to some extent, utility maximizers such that, all else equal, they will invest in policies that provide the greatest beneªts and lowest costs to them. 139 Insofar as state policy-makers “share” responsibility for some environmental concerns with their federal counterparts, it may be difªcult for them to secure the beneªts of their efforts. 140 Relatedly, information about the relative activities of the federal and state governments and their relative merits is costly to the average voter where both the state and federal governments are active. As a result, it may be difªcult for policy-makers to get credit for all of the policies they promote or implement. 141 This is one reason why some argue that cooperative federalism undermines accountability. When both the federal government and the states are involved, it is more difªcult for a voter to know who to credit or blame for a given policy. 142 Because it is easier for a state policy-maker to get credit for a policy when the state does not compete with the federal government in the provision of that policy goal, all else being equal, a state policy-maker will prefer to legislate where the federal government is less active. One implication of the crowding-out effect is that it is possible that the adoption of a federal regulatory ºoor may result in lower aggregate levels of regulatory protection than had the federal government not entered the ªeld at all. This potential is illustrated in Figure 5 below. As in Figure 2, which illustrated the signaling effect, States A and B initially have regulatory standards (QAReg and QBReg , respectively) less stringent than the federal standard (QFReg ), while State C has a regulatory standard (QCReg ) greater than the relevant federal standard. Here, however, the demand for environmental regulation in each state is not static. Rather, the demand for regulation in State B is increasing over time as State B goes through its own environmental transition. Absent federal regulation, State B would eventually adopt a higher level of protection—a level of protection greater than that which would be adopted at the federal level. In this scenario, the adoption of a federal standard has the potential to signal to states to reduce their levels of protection. It may also discourage the adoption of even greater levels of protection in those states that go through their environmental transition after the adoption of the federal standard. This potential opportunity cost of federal regulation is no less important than the more observable effects illustrated in Figure 2. When the crowding-out effect is combined with the signaling effect discussed above, **the likelihood that federal regulation could result in a net decline in the aggregate level of regulatory protection increases.** As before, adoption of the federal regulatory standard increases the aggregate level of regulation by a quantity equal to the sum of the difference between the federal standard and the lower state standards. The net beneªt of the federal standard at any given point in time is this amount (QFReg– QAReg ), less any reduction due to signaling (QCReg– QFReg ), and the extent to which State B would have regulated absent federal action (QBReg– QFReg ). Here the net effect of the federal standard will be the extent to which the increase in regulation in State A varies from the reduction in State C and regulation abandoned in State B. Stated as a formula, the net beneªts of federal regulation equal: (QFReg– QAReg ) – [(QBReg– QFReg ) + (QCReg– QFReg )]. **Even if the adoption of federal regulation initially increased the aggregate level of regulatory protection, over time the level of protection might be less than it would otherwise have been. As more states go through their environmental transitions, the magnitude of this crowding effect could increase,** **unless federal regulatory standards are able to keep pace. Given the slow rate at which existing federal regulatory programs are reviewed and expanded, however, this is a questionable assumption.**

***This is uniquely the case with fracking regulations***

Wyoming brought together geologists, engineers, industry, landowners, citizens, environmental groups and policymakers to develop reg’s

Fed = duplicative, adds cost and time delays

Ceiling – disincentivizes state action

States can address problems more efficiently and quickly

Fed regs deter investment

Not consistent – doesn’t apply to state or private lands

**Mead**, 9/17/**12** (Matthew, Matt Mead was elected last November and sworn in as Wyoming's 32nd governor on January 3, 2011. Born in Jackson, Wyoming, Governor Mead was raised on the family ranch in Teton County. He has a BA degree from Trinity University in San Antonio and a law degree from the University of Wyoming. After law school, the Governor served as a county and federal prosecutor, practiced in a private firm in Cheyenne with now-Attorney General Greg Phillips, and served as United States Attorney for Wyoming from October 2001 to June 2007. After he stepped down as U. S. Attorney, Matt and his wife Carol, the First Lady, returned fulltime to operating their farming and ranching business in southeast Wyoming. Matt and Carol have been married 20 years, with Cheyenne as their home. They have two children, Mary and Pete, who attend Cheyenne public schools. The Washington Times: “MEAD: Hydro-fracking regulations should be left to states” http://www.washingtontimes.com/news/2012/sep/17/hydro-fracking-regulations-should-be-left-to-state/

***States’ rights come with states’ responsibilities***. **Wyoming** time and again **has proved it can promote development, support its economy and protect the environment**. From hydraulic-fracturing rules to air-quality strategies, Wyoming leads in developing solutions that work for people and the future, without compromise on clean air, wildlife, land or water. Those of us who call Wyoming home only want to make the state better. Our environment and natural wonders are among the many reasons we choose to live here. We always have them in mind; we know they are important, and so we balance energy development and environmental protection — **and we regulate accordingly, getting the balance right. Where Wyoming has gotten it right — regulating at the state level in a reasonable and responsible way — regulation should be left to the state.** **Such is the case with hydraulic fracturing**. The [federal government](http://www.washingtontimes.com/topics/federation/) should reward us for our successful regulatory effort, allow us to continue it and put federal regulation aside**. Specifically, in 2010, Wyoming brought together geologists, engineers, industry, landowners, citizens, environmental groups and policymakers to address hydraulic fracturing**. As a result, our state developed pace-setting rules. Wyoming did so well that in 2012, the [federal government](http://www.washingtontimes.com/topics/federation/) attempted to follow our lead**. The** [**Bureau of Land Management**](http://www.washingtontimes.com/topics/bureau-of-land-management/) **(**[**BLM**](http://www.washingtontimes.com/topics/bureau-of-land-management/)**) began to consider hydraulic-fracturing rules.** [**BLM**](http://www.washingtontimes.com/topics/bureau-of-land-management/)**’s proposed rules are based on those Wyoming drafted,** adopted and has followed since 2010. Those proposed **federal rules add unnecessary and often repetitive requirements**, **which add cost and delay projects**. **They would pile on federal rules over existing, effective state rules, with negative consequences.** **Those consequences include inconsistency and uncertainty for operators and drillers, which could result —** albeit unintentionally — **in harm, not benefit.** [**BLM**](http://www.washingtontimes.com/topics/bureau-of-land-management/)**’s use of Wyoming’s rules as a foundation has**, perhaps inadvertently, **added steps, twists and even a few locked doors in developing hydraulic-fracturing rules for federal lands. Even discounting factors such as inconsistency and uncertainty, the proposed federal rules do not bring perceptible benefit to the environment or the economy.** They intrude into an area Wyoming already has addressed**. They add new requirements without sound basis. *When the*** [***federal government***](http://www.washingtontimes.com/topics/federation/) **improvidently *steps in, it creates a disincentive for states to implement strategies and programs better left to the states to manage***. **The** [**federal government**](http://www.washingtontimes.com/topics/federation/) **should recognize the states’ leadership role in many arenas — especially when borrowing state work. *Well-run state permitting and regulatory programs achieve results***. **They help industry create jobs and maintain environmental standards.** **Wyoming has a record of success in environmental stewardship, natural-resource development and job generation. We are accountable every day for decisions made and actions taken. We take responsibility.** We want to leave a legacy for future generations that is ever better**. Our state is simply in the best position to get results. Wyoming’s hydraulic-fracturing rules are working. The Wyoming Oil and Gas Conservation Commission is capable of administering these rules well across private, state and federal lands. *State government is nimble. If state rules are a bad fit, they can be changed quickly. In contrast, the*** [***federal government***](http://www.washingtontimes.com/topics/federation/) ***by size alone moves at tortoise speed.*** Examples are plentiful. **Pick one, such as the** [**BLM**](http://www.washingtontimes.com/topics/bureau-of-land-management/)**’s well-stimulation regulations, last updated in the 1980s.** **The Wyoming Oil and Gas Conservation Commission has considered changes to its rules 19 times since 1996. Federal hydraulic-fracturing rules will only exacerbate the problem of chronic federal permitting delays. The delays are attributed to federal staffing issues now. New rules will add new burdens.** There are many examples, but well-plugging is a good illustration. **According to the Government Accountability Office, the** [**BLM**](http://www.washingtontimes.com/topics/bureau-of-land-management/) **has not managed its liability for non-producing wells that need to be plugged, reclaimed or put back into production. If the agency cannot handle what it has on its plate, it makes no sense to add more.** While the [BLM](http://www.washingtontimes.com/topics/bureau-of-land-management/) hosted public forums in a few locations (North Dakota, Arkansas, Colorado and Washington, D.C.) and consulted with tribes, industry and the environmental community as it explored its hydraulic-fracturing rules**, the** [**BLM**](http://www.washingtontimes.com/topics/bureau-of-land-management/) **has not consulted with states.** **This is troubling. States are the primary regulators of oil and gas and are better positioned to meet the challenges presented by constantly developing technologies. State rules apply across jurisdictions.** [**BLM**](http://www.washingtontimes.com/topics/bureau-of-land-management/) **rules, on the other hand, would not apply on state or private land.** If there is no consultation with the states when the proposed rules are developed, what will happen when the rules are implemented? What if federal regulations conflict with state regulations? Which rules take precedence? Rules must be consistent and uniform. Water does not understand boundaries. It flows indiscriminately beneath federal, state and deeded land. We need one consistent rule. **We already have one in Wyoming. Oil and gas operations on public lands have been following state environmental oil and gas laws and regulations for decades. Indeed, oil and gas operators on public lands in Wyoming are following hydraulic-fracturing and environmental laws, including “green completion” air regulations. Oil and gas royalties from drilling on public lands are a significant source of revenue for the** [**federal government**](http://www.washingtontimes.com/topics/federation/) **and for Wyoming.** Affordable domestic energy helps fuel the economy. **Unnecessary regulation on public lands could force operators to shift investment away** from public lands, resulting, among other things, in less oil and gas, fewer jobs, less multiple-use, less revenue and more dependence on foreign sources. **Both the environment and energy are important to us.** Wyoming’s proactive work on hydraulic-fracturing regulation demonstrates our commitment to each. **The** [**federal government**](http://www.washingtontimes.com/topics/federation/) **should show its commitment to sound state regulation by leaving fracturing rules to the state.**

***Methane emissions cause extinction --- CO2 defense doesn’t apply***

**Heinberg 4** (Richard, Award-Winning Author and Core Faculty Member of New College of California, “Power Down: Options and Actions for a Post-Carbon World,” pp.122-4)

Methane hydrates represent an even larger store of hydrocarbons in Earth’s crust; however, in the end, the prospects for exploiting them may be even more discouraging than is the case with tar sands. As marine organisms decompose, they release methane. Under certain conditions, that methane can become trapped on the ocean floor in ice crystals, and can build up over time. The resulting mixture of methane and ice is called methane hydrate. This material is also sometimes found in permanently frozen soil on land: there are, for example, methane hydrate deposits in Siberia and Alaska. Oceanic methane hydrates are so plentiful that, in theory, they could power the world for centuries. Some estimates put the total at more than twice the amount of all other fossil fuels combined. However, the harvesting of the resource constitutes a technical problem of immense proportions. As hydrate material is mined and brought to the ocean surface, it fizzes and bubbles as methane turns to gas and dissolves in the water. Eventually, the methane makes its way into the atmosphere. The problem then is not merely that a potentially valuable substance has been lost, but that a previously stored greenhouse gas has been loosed on the environment. The most frequently discussed greenhouse gas is carbon dioxide, which is released with the burning of fossil fuels. However, ***methane is over twenty times as effective as carbon dioxide at trapping the heat from sunlight***. Thus, ***if a significant quantity of methane were to be freed into the atmosphere, the resulting contribution to global warming could be cataclysmic***. Is there enough methane trapped in hydrates to make much of a difference in this regard? There is, and by a long shot. Altogether, there is roughly 3,000 times more methane locked up as hydrates than is currently found in Earth’s atmosphere. Even without attempts at commercial exploitation, oceanic hydrates are already responsible for between 5 and 10 million tons of methane emissions to the atmosphere each year. Seabed methane hydrates already represent a serious environmental threat in the context of global-warming trends. As the temperature of the oceans rises, hydrate deposits may become unstable**. This could release large amounts of methane into the atmosphere, thus greatly exacerbating the greenhouse effect, which would in turn warm the oceans even further. The result could be a self-reinforcing feedback loop with unimaginably horrific consequences.** Adding commercial extraction procedures to this existing precarious situation hardly seems prudent. Some scientists, including Charles Paull, a researcher with the Monterey Bay Aquarium, say that extracting gas hydrates could disrupt seafloor stability.1 Geologists suspect that the large-scale breakdown of methane hydrate deposits was responsible for huge underwater landslips and the creation of massive tsunami waves earlier in Earth’s history, as well as for sudden periods of intense global warming. If in the future unstable hydrates were dislodged by attempts to extract them, the result could be a modern rerun of those ancient cataclysms, with immense waves sloshing across the oceans, scouring the surfaces of islands and inundating coastal cities, while the entire planet baked under a methane fog. Nonetheless, when the human economic need is great enough, we can be sure that attempts will be made to produce usable energy from methane hydrates. Resource-poor Japan (which imports nearly all of its oil and gas) is already involved in research in hydrate beds along the Nankai Trough, some 3,500 feet (1,100 meters) under water, and at an international test site in the frozen Mackenzie River delta in northern Canada. In 2002, the Japan National Oil Corporation announced some success in the Mackenzie Delta tests. Japan hopes to determine by 2011 whether commercial methane hydrate mining is feasible; if it is, efforts could begin by 2015. In the US, Congress has appropriated $47 million for methane hydrate research over the next few years — though many of the funded projects are mostly academic, with methane deposits on the moons of Jupiter and Saturn envisioned as a fuel source for future space travel. However, as the North American natural gas crisis deepens, there will be increasing incentive to explore the possibility of extracting methane from coastal seabeds or frozen tundras. The US Geological Survey has estimated that the quantity of gas hydrates in the United States is equal to roughly 200 times the conventional natural gas resources remaining in the country; according to the Department of Energy, if only one percent of the deposits could be exploited for domestic consumption, the US could more than double its supply of energy resources. The exploitation of land-based methane hydrates is especially likely to garner increasing interest — but the technical hurdles in this instance are almost as problematic as in the case of seabed deposits. Russian engineers have suggested pumping nuclear waste under the Siberian permafrost to thaw the hydrate fields there so that they can be exploited. Such methods are sure to provoke quite an outcry from environmentalists and native populations if applied in North America. Will methane hydrates be the energy source of the future? Don’t hold your breath. The inevitable efforts in that direction may or may not yield useful net energy; in either case, intense battles will be waged between environmentalists on one hand and government and industry leaders on the other. The stakes will be breathtaking: if the concerns of Earth scientists are well founded, and if a miscalculation were to occur, the damage could be incalculable**.** With the development of the hydrogen bomb, humanity was forced to confront the fact that it had invented a means for its own extinction. If an industry emerges devoted to seabed methane hydrate extraction, **humankind might find itself facing another similarly stark awakening.**

***Methane outweighs Co2 and gas leaks are key***

**Leahy, 1/24/12** (Stephen, lead international science and environment correspondent at IPS, where he writes about climate change, energy, water, biodiversity, development and native peoples. Based in Uxbridge, Canada, near Toronto, Steve has covered environmental issues for nearly two decades for publications around the world. He is a professional member of the International Federation of Journalists, the Society of Environmental Journalists and the International League of Conservation Writers. He also pioneered Community Supported Environmental Journalism to ensure important environmental issues continue to be covered.

IPS: “Shale Gas a Bridge to More Global Warming,” http://www.ipsnews.net/2012/01/shale-gas-a-bridge-to-more-global-warming/

However, those **climate gains are** more than **negated by methane leaks** both at the well **during the fracking process** (called flow-back), and through the gas delivery and distribution system. Howarth and colleagues estimate that **between 3.6 and 7.9 percent of all shale gas produced leaks – called “fugitive emissions” – into the atmosphere, making it worse than burning coal or oil. *Methane has 105 times the warming potential of CO2*** over a 20-year time frame, after which it rapidly loses its warming potential. **If large amounts of methane are released through fracking – as seems likely with hundreds of thousands of new wells forecast in the next two decades** – Howarth says **global temperatures could rocket upward from 0.8C currently to 1.8C in 15 to 35 years, running the risk of triggering a tipping point that could lead to catastrophic climate change**. “**Our primary concern is that methane emissions over the coming two decades will drive the entire climate system past a major tipping point**,” he told IPS.

***States key to methane capture***

**Worldwatch Institute**, An independent research organization based in Washington, D.C. that works on energy, resource, and environmental issues, “Despite Methane Emissions Upstream, Natural Gas Is Cleaner than Coal on a Life-Cycle Basis”, Updated Feb 4th 20**13**, http://www.worldwatch.org/despite-methane-emissions-upstream-natural-gas-cleaner-coal-life-cycle-basis

Washington, D.C.-Over its full cycle of production, distribution, and use, natural gas emits just over half as many greenhouse gas emissions as coal does for equivalent energy output, according to a new study from the Worldwatch Institute and the Deutsche Bank Climate Change Advisors. The analysis clarifies the role of methane releases in the calculation of comparative emissions between the two fossil fuels and explores how the growing share of natural gas production from shale formations could change that fuel's footprint. Earlier this year, the U.S. Environmental Protection Agency (EPA) updated its methodology for estimating methane emissions from natural gas systems, generating concern that the new, higher methane figures could minimize the greenhouse gas advantage that natural gas is seen widely to have over coal. Applying the EPA's new estimates, the life-cycle greenhouse gas footprint of natural gas-fired electricity increased roughly 11 percent, according to the study. "Despite a substantial increase in the methane assumed to be emitted during natural gas production, we found that U.S. natural gas-fired electricity generation still released 47 percent fewer greenhouse gases than coal from source to use," said Saya Kitasei, a Worldwatch Institute Sustainable Energy Fellow and one of the contributing writers. The authors stress that although methane emitted during natural gas production might not make natural gas-fired electricity dirtier than coal, it can and must be mitigated immediately. "In addition to being a potent greenhouse gas, methane is a valuable energy source that natural gas producers should be capturing for sale," said Kitasei. "Because some of the same technologies that prevent methane from entering the atmosphere also reduce emissions of smog-forming compounds, tackling methane emissions is a win-win-win proposition." The study points out that ***regulatory and technological tools to reduce methane emissions are being demonstrated in some U.S. states and by some companies***. Although reducing methane emissions has been largely voluntary to date in the United States, new EPA rules could require the natural gas industry to measure and report its greenhouse gas emissions and to use control technologies that will significantly reduce associated methane emissions as early as 2012. Further highlights from the study: The EPA's recent upward revisions of methane emissions from natural gas are related largely to the production share of the gas value chain, especially during the unloading of liquids and (in the case of hydraulically fractured wells) during flowback. The life-cycle greenhouse gas footprint of natural gas is lower than coal under all "global warming potentials" tested, with the smallest difference calculated using a GWP of 105, where the emissions are 27 percent less than those of coal-fired generation. **Methane emissions during natural gas production, processing, transport, storage, and distribution can be mitigated now at moderately low cost using existing technologies and best practices. Such capture potential presents a commercial and investment opportunity that would further improve the life-cycle greenhouse gas footprint of natural gas.**

***Ineffective regulation causes the collapse of the fracking industry in the long term --- dooms production***

**Walsh, 12** (Time: “Why the Shale Gas Industry Needs Regulations for Fracking” By [Bryan Walsh](http://science.time.com/author/bryanrwalsh/), I'm a senior writer for TIME magazine, covering energy and the environment—and also, occasionally, scary diseases. Previously I was the Tokyo bureau chief for TIME, and reported from Hong Kong on health, the environment and the arts. I live in Brooklyn. May 30, 2012 <http://science.time.com/2012/05/30/why-the-shale-gas-industry-needs-regulations-for-fracking/#ixzz2KzbIgSBc>

You’ll rarely find a business in America—and especially one in the fossil-fuel industry—asking for more regulation. The default mode of industry groups like U.S. Chamber of Commerce and the American Petroleum Institute (API) is that government is always the problem, and that less regulation is always the solution. That’s usually been the position of the shale gas industry in the U.S., as new hydrofracking technology has enabled companies to tap vast new natural gas deposits, transforming the energy picture in the U.S.—and eventually, around the world. Ask any natural gas executive, and they’d tell you that the only thing holding back the industry was the threat of government regulations that would raise the cost of drilling and production. Fracking, as the industry group API [says on its website](http://energytomorrow.org/energy/hydraulic-fracturing/#/type/all), is a “proven and well-regulated technology.” **Green and many locals living in shale gas territory disagree, however, giving birth to an anti-fracking movement that may have more momentum than anything else in environmentalism today. And that movement has had a serious slowing effect on shale gas**, with states like New York and Vermont restricting fracking. Overseas the public opinion of fracking is even worse, with countries like France banning the practice altogether. The International Energy Agency (IEA) has said that the world could be entering a Golden Age of Gas, so plentiful are shale deposits in countries around the world, which means the gas is there. **But environmental concerns—*if unanswered*—could end that age early**. ***That’s why good regulation—far from ~~retarding~~ the growth of the shale gas industry—might be the only thing that ensures it***. Such is the conclusion of a [new study](http://www.worldenergyoutlook.org/goldenrules/#d.en.27023) released by the IEA this week which found that “golden rules” of regulation are needed to usher in the golden age of gas. **Without it, mass opposition could limit fracking altogether.** Here’s [IEA Executive Director Marla van der Hoeven](http://www.iea.org/newsroomandevents/pressreleases/2012/may/name,27266,en.html):

**The technology and the know-how already exist for unconventional gas to be produced in an environmentally acceptable way**. **But if the social and environmental impacts are not addressed properly, there is a very real possibility that public opposition to drilling for shale gas** and other types of unconventional gas **will halt the unconventional gas revolution in its tracks. The industry must win public confidence by demonstrating exemplary performance; governments must ensure that appropriate policies and regulatory regimes are in place.**

***Natural gas revitalizes every industry --- including chemicals***

Steve **Stackhouse**, writer for Area Development, MA in Journalism, “New Natural Gas Technologies Firing Up Manufacturing”, Fall 20**12**, http://www.areadevelopment.com/EnergyEnvironment/Fall2012/natural-gas-technologies--fuel-economic-boom-2223461.shtml

**The economic boom fueled by new natural gas drilling technologies has been stunning** — **some parts of the country barely noticed the Great Recession** as they scrambled to find enough well-paid workers to extract shale gas from the ground. **But what if that boom was just the tip of the economic-development iceberg**? **What if the gas boom turned out to be a catalyst helping to spark a much-needed rejuvenation in North American manufacturing**? That’s a question many business leaders and academics have been asking lately, and **the answer is encouraging.** **One study has projected the addition of a million new jobs in the next dozen years thanks to the availability of more affordable energy**, the need for products involved in extracting gas, as well as new manufacturing operations involving various products and byproducts that come from the ground. **Other studies look forward to an even bigger impact on jobs, and suggest that manufacturing operations that previously fled to overseas locations may turn around and come home.** New Technologies **The boom stems from the increased use of hydraulic fracturing**, or “fracking,” **and horizontal drilling techniques to unlock formerly inaccessible underground oil and gas treasures**. The concept started to catch on in the late 1990s in the Barnett Shale area of Texas and quickly spread to reserves such as Eagle Ford, Marcellus, Utica, and Bakken. **These and other shale reserves are rich enough to make the United States one of the world’s top producers of shale gas and all of its various downstream products**. A variety of industries will feel the impact, says Kevin Smith, chief economist for the American Chemistry Council. **The chemical industry** he represents **is already seeing growth, and** he says to also **watch for an impact in such sectors as steel and other metals, plastics and rubber products, glass, paper, and cement — what** he says **could be “a whole manufacturing renaissance in this country.” Take, as just one example,** **the plans from Shell Chemical to build** an ethane “cracker” in the northeast United States. A “cracker” is what the industry calls **a plant that breaks down oil and gas into smaller molecules**, and an ethane cracker creates ethylene, which goes into plastic. **Shell favors a site in Pennsylvania, one of the hot spots for shale gas development**, **and Smith’s organization has projected that the project could create more than 17,000 permanent jobs**, including direct and indirect jobs as well as ripple-effect employment. **Multiply that by the many other kinds of operations fueled by the shale gas boom and you get** what a PricewaterhouseCoopers study also terms “**a renaissance in U.S. manufacturing**.” One of that study’s lead contributors was Bob McCutcheon, PwC’s U.S. industrial products leader and the managing partner in Pittsburgh — a place where both shale gas and the state of manufacturing are on a lot of people’s minds. “We’re in the Marcellus Shale country, and a lot of conversation a year ago was centered on the energy sector — jobs, drilling activity, farmers cashing checks,” he says. “We were talking to a lot of clients in the industrial products sector and started to have a lot of conversations about what this might mean longer-term for manufacturing. So we tried to take a data-driven approach to the question.” **What are the results of this data-driven research? “We believe that the affordable, abundant shale gas that’s available with technology in horizontal drilling and fracking is a game-changer for U.S. manufacturing,”** says McCutcheon. **A report from the American Chemistry Council has similar superlatives: “Natural gas from shale is possibly the most important energy development in 50 years. It has huge potential for the United States.”** Who’s Feeling the Benefits? **Among other things, the PwC study scoured the filings of public companies for evidence of growth or planned expansions resulting from the gas boom**. **Even relatively early in the game, these documents already include numerous mentions**. Some of them point to the cost savings brought about by the drop in natural gas prices. Indeed, **the downward effect on natural gas prices is a goldmine for manufacturing,** according to the PwC analysis. **By 2025, U.S. manufacturers could be saving more than $11 billion a year on natural gas expenses. But probably twice as many of the public company filings on the topic involve firms that expect to make more use of the various byproducts of shale gas production, or whose products are essential to the extraction of shale gas**. According to Smith, **there has been a significant increase in capital investments made by chemical-makers and other manufacturing industries** — **investments that could eventually add up to $75 billion**. Gulf Coast locations and Appalachian areas are already seeing the impact, he notes. **One American Chemistry Council study focused on the projected supply response among eight natural gas-intensive manufacturing industries, and forecast an increased output of about $120 billion, which in turn would support the creation of 1.2 million** direct, indirect, and induced **jobs** — **not to mention the 1.1 million jobs that would be created by construction**. **Even that could be just the beginning of the employment impact, though**. Smith points to a Boston Consulting Group study suggesting that **America could be in for a wave of “re-shoring,” essentially the opposite of offshoring**. **As the cost picture improves, returning manufacturers could generate two to three million jobs. Truth is, many industries benefit from both the lower energy and supply costs as well as the opportunity to expand production.** **Take the metals business. There are plenty of metal tubes and pipes and other components involved in gas drilling itself**, McCutcheon notes. Beyond that, “**steel work is one of the largest consumers of natural gas, so the cost savings could be a significant competitive advantage for manufacturers here**,” he observes**. In addition, newer steel production technologies could carry the benefits a step further, including processes that substitute natural gas for coke in the steelmaking recipe.** Developments Linked to the Boom The American Chemistry Council has compiled lists of developments linked to the natural gas boom. Smith says the original intent was to create a “one-pager” summary, but the list quickly grew into multiple pages (in fact, there’s a page with fairly small type devoted just to chemical manufacturing developments and another full page of plastics-related projects). Here are just a few more examples of developments that observers have linked to the natural gas boom: **Dow Chemical plans to use shale resources along the Gulf Coast to ramp up ethylene production. Earlier this year, the company announced development of a new ethylene production plant in Freeport, Texas, and it plans to restart a Louisiana ethylene cracker and seek additional feedstocks from the Eagle Ford and Marcellus reserves**. In announcing the Texas development, the company’s Chairman and CEO Andrew Liveris noted, “For the first time in over a decade, U.S. natural gas prices are affordable and relatively stable, attracting new industry investments and growth, and putting us on the threshold of an American manufacturing resurgence.” **Research by the American Chemistry Council includes a long list of iron and steel expansions** that can be tied to the natural gas boom in such places as Pennsylvania, Ohio, North Carolina, Minnesota, Texas, Alabama, and Arkansas. **Nucor Steel has plans for a $750 million direct-reduced iron facility in Louisiana**. Like most metals-related plants, it’ll need a strong supply of natural gas, and nearby shale resources are considered likely sources. **Last year, U.S. Steel opened an Ohio mill to make steel pipe for the drilling industry, and a French company named Vallourec & Mannesmann is doing the same. The Eagle Ford Shale in Texas is the catalyst behind a $1.7 billion Formosa Plastics chemical complex expansion nearby.** Cracking units would produce ethylene and propylene gases for use as raw materials at on-site plastics plants. **Old Ocean, Texas, is where Chevron Phillips plans two propylene facilities, part of the company’s U.S. Gulf Coast Petrochemicals Project**. Last year the company announced plans for Gulf Coast ethane cracker and ethylene derivatives facilities. **Aither Chemicals is exploring development of an ethane cracker in West Virginia. The company is exploring the market interest for chemical feedstocks** that its cracking process would produce by tapping into the Marcellus Shale. **Bridgestone, Michelin, and Continental have South Carolina tire manufacturing developments linked to the gas boom, according to the American Chemistry Council**. Where Are the Benefits Most Powerful? The natural gas boom is certainly reflected in Area Development’s 2012 Leading Locations analysis. Many of the U.S. locations revealed by data sources to be the most prosperous are feeling the impact of fracking — from North Dakota to Texas to parts of Louisiana. Indeed, the impact has been so powerful that many of these areas barely experienced the recession and, if anything, had a surplus of job openings. As David Jenkins, vice president at engineering consultant TRC Companies, points out, there’s so much demand for workers that some sites have had to build worker “camps.” **The question is how far does the halo expand beyond those areas where the gas is being extracted from the ground?** “It depends on the nature of the industry and how important it is to have close proximity to gas,” McCutcheon says. “One of the challenges is infrastructure and the ability to transport and store the gas.” Crackers, for example, tend to be in close proximity to the source. And as David Moss of Texas-based Armada Oil observes, end-users may tap right into their producers to trim overhead costs. “Locating manufacturing facilities near the producers is smart if you negotiate direct delivery from them and have or build a pipeline for delivery,” he says. On the other hand, **the boom has pushed natural gas prices down across North America, so** as McCutcheon points out, “**the broader effect is not necessarily going to be as geographically specific**.” It’s no surprise, then, that **chemical and plastics developments on the American Chemistry Council’s project list can be found all over the North American map, not just in the neighborhood of the shale reserves.** But **here’s where the story gets particularly positive for the U.S. economy compared with global competitors. “The market is still very inefficient**,” McCutcheon says, “**and that inefficiency in the market creates a competitive advantage in the United States**.” Three cheers for inefficiency? In this case, yes. A more efficient natural gas market would allow more global pricing, as is the case with oil. But, “**natural gas is still essentially regionally priced, so an abundance of natural gas in North America will benefit prices in North America,”** says McCutcheon. **The price advantage is significant. Natural gas may cost five times as much in some other parts of the world, even six or seven times higher in other places. That erases or at least mitigates a lot of the competitive advantages that have driven manufacturing overseas in recent years. The swing of the pendulum is quite noticeable** when one looks into the nation’s liquefied natural gas (LNG) terminals. As the PwC report points out, companies in the past have built LNG import facilities in America, under the assumption that domestic natural gas supplies would be limited. Now that they seem practically unlimited “that trend has reversed, and there is more interest in conversion to LNG export terminals,” the report states. How long will the U.S. advantage last? And aren’t there opportunities to frack in other countries? **“There are certainly significant shale gas reserves outside the United States, but currently the U.S. has the strategic advantage in technology and the ability to extract the gas,”** McCutcheon says, adding that he expects the American advantage to last for some time. **And that’s why the natural gas boom is potentially amazing news in a lot more sectors than just oil and gas development.** “This is a big part of a bigger story,” McCutcheon says. “**It is a major contributing factor to a competitive environment that could lead to a resurgence of manufacturing.”**

***A competitive chemical industry is key to sustainability, and solves extinction***

**ICCA 2 –** ICCA (International Council of Chemical Associations), June 20, 2002, “SUSTAINABLE DEVELOPMENT AND THE CHEMICAL INDUSTRY,” online: http://www.cefic.be/position/icca/pp\_ic010.htm

Sustainability in economic terms means the efficient management of scarce resources as well as a prospering industry and economy. Sustainability in the environmental sense means not placing an intolerable load on the ecosphere and maintaining the natural basis for life. Seen from society's viewpoint, sustainability means that human beings are the centre of concern. In view, particularly, of the population increase worldwide, there needs to be provided as large a measure of equal opportunities, freedom, social justice and security as possible. ¶ The chemical industry views Sustainable Development as a challenge put before all parts of society. In the advances made in its own operations, its improved performance and in the improvements to the human condition made through its products, the chemical industry sees cause for optimism and believes that Sustainable Development can be the intellectual framework around which the chemical industry, other industries and other sectors of society can reach consensus on how to improve living standards and the environment. ¶ The main challenges facing the world include:- ¶ \* Optimizing the benefits obtained from depleting resources¶ \* Assuring against excessive strains placed on the eco-system¶ \* The dynamic growth of the world population¶ \* Remedying social and economic inequalities¶ These are challenges on a global scale. It follows, therefore, that the attainment of Sustainable Development will call for action on the part of the people, governments, businesses and organisations around the world. The global chemical industry has realized this challenge. ¶ CONTRIBUTION OF THE CHEMICAL INDUSTRY TO SUSTAINABLE DEVELOPMENT¶ The chemical industry is a key industry. Its products and services are instrumental in meeting the needs of mankind. It is present in ***all areas of life***, from food and clothing, housing, communications, transport - right through to leisure activities. In addition, it helps to solve the problems of other sectors of industry, such as the energy sector, information technologies, environmental industries and the waste disposal sector, as examples.¶ Due to its size, the chemical industry is an important supplier to a broad range of downstream industries and is, as well, a customer of a broad range of products and services from other industries. It follows, therefore, that the chemical industry plays a major role in providing/ supporting performance improvements, research and development progress and, last but not least, employment in other industries.¶ In itself, it is a large-scale provider of jobs and makes a significant contribution to wealth creation and, hence, to the financing of both public works and the exercise of public responsibilities. Since living standards are determined to a large degree by material considerations, it is clear that the chemical industry with its ***unique capabilities*** is in a position to make a ***decisive contribution*** to Sustainable Development.¶ Commitment by the world chemical industry to the concept of Sustainable Development requires words to be transposed into company-specific action programmes in order to provide a framework for all those working in the sector. Its "Responsible Care" initiative, self-monitoring systems and other voluntary programmes such as Sustainable Technology (SUSTECH), Education-Industry Partnerships, Energy Efficiency Programmes are also part of this framework. Thereby, companies are also confronted with new challenges and must act responsibly. They must take account of the consequences of their actions upon society and future generations.¶ The global chemical industry believes that the key to improving the performance of the industry is both its commitment to achieving environmentally sound Sustainable Development and improved performance and transparency. Under the concept ¶ environment, to seek continuous improvement in performance, to educate all staff and work with customers and communities regarding product use and overall operation. Through these efforts the industry is improving its efficiency, reducing risks to health and the environment and making better products which, in turn, help individual and industry customers.¶ THE CHEMICAL INDUSTRY's LEADERSHIP IN INNOVATION¶ The very notion of Sustainable Development will require new approaches in a number of areas. Innovation at all levels and in all fields of activity is the most effective instrument for ensuring that the economic, and environmental goals, as well as those of society, are being advanced.¶ The chemical industry's contribution is to continue innovation of new products that meet customer needs and manufacturing processes that reduce risks to health and the environment. This contribution is based upon the knowledge and experience the industry has acquired from applying innovation not only to making, handling and use of chemical compounds, but also to reprocessing, recycling and solving environmental problems. The challenge facing the chemical industry is to maximize innovation, which can contribute to society meeting its goals for Sustainable Development. ¶ The chemical industry is firmly convinced that leadership in innovation represents the best way of attaining Sustainable Development. For the individual company, this means:- ¶ \* a consistent orientation towards products, technologies and solutions which offer the greatest promise for the future¶ \* development of new integrated environmental technologies¶ \* a close cooperation with the customers of the chemical industry¶ \* adaptation to the conditions of global competition¶ \* bringing the most promising products quickly on the market¶ \* strengthening the R&D effort which requires resources which can only be financed from profitable earnings¶ \* actively contributing ideas and suggestions to the policy debates taking place in society¶ \* improving process yield (efficiency).¶ APPROACH TO THE ECONOMIC GOAL OF SUSTAINABLE DEVELOPMENT¶ The internationalization of the economy at large, in conjunction with a growing trend towards global competition, is becoming more and more apparent. This is being manifested by:- ¶ \* an increase of imports and exports of goods as well as services¶ \* growing outward and inward flows of direct investment¶ \* an ever increasing exchange of technology transfers¶ \* globalization of monetary and financial schemes. ¶ The inter-relation of economic systems is complex, with a variety of relationships among countries. Multi-national chemical companies apply common standards in spreading investment capital and stimulating markets around the globe, thus setting the scene for the world market. What they need, in order to play a constructive role in Sustainable Development, is, first and foremost, freedom and fairness in international trade. Trade as an engine of economic growth is essential for Sustainable Development. A climate needs to be fostered within which such growth may take place on the basis of a clear set of rules with predictable consequences, by which investors may be guided in their long-term decision-making process. This includes bringing to a halt the growing intervention by governments in industry and their ever increasing demands to raise income by taxation, thus imposing a disproportionate load on the business community.¶ Wealth creation and **profits are fundamental to Sustainable Development**. They sustain economies (not just the chemical industry), and contribute, via re-investment and R&D, to new technologies and environmental improvements. Profits are needed to create flexible company structures oriented towards economic, environmental and society-related requirements.¶ The chemical industry is a major industrial sector and an essential contributor to welfare and employment on a global scale. In order to ***maintain this position*** under the imperative of Sustainable Development, the long-term ***future of the industry*** must be rooted in a dynamic policy, whereby ***continual innovation*** and re-engineering of companies result in an increase of productivity and, thus, keeping up ***international competitiveness*** as a pre-requisite of sustainable job creation.

**New Advantage**

***India will inevitably exploit shale gas***

**Bhandari 1/24/13** – Divita Bhandari is a first year MEM candidate at the Yale School of Forestry and Environmental Studies. She hails from Hyderabad, India and is interested in Energy and Environmental Policy. She is part of CBEY’s Shale Gas Research Team. 1-24-13, Yale – Center for Business & Environment, Is Shale Gas the Answer to India’s Energy Challenges?, <http://cbey.yale.edu/news/206/154/Is-Shale-Gas-the-Answer-to-India-s-Energy-Challenges>, jj

However, **there is no doubt that India will go forward in pursuing shale gas exploration to meet the huge gap between supply and demand**. Eventually **the success of the policy in meeting domestic demand will be** largely **dependent on how the country addresses these unique challenges.**

***The US determines the effectiveness of regulations in other countries***

**Liu & Turner ’11** – Kexin Liu was a research intern at CEF in the summer of 2009 and again in the summer and fall of 2010. He is currently working with Clean Air Task Force. He graduated with a Master's Degree in Public Policy from University of Michigan in 2010. He can be reached at: kexinliu84@gmail.com. Jennifer Turner has been director of the China Environment Forum for the past 11 years. She can be reached at [Jennifer.turner@wilsoncenter.org](mailto:Jennifer.turner@wilsoncenter.org). April 2011, Wilson Center, Shale We Dance? Exploring a New Area of U.S.-China Energy Collaboration, <http://www.wilsoncenter.org/publication/shale-we-dance-exploring-new-area-us-china-energy-collaboration>, jj

MIND THE GAPS **As the leader in the development of shale gas, many countries are interested in learning the U.S. experience in shale exploration and hydraulic fracturing**. **Tapping domestic shale gas is particularly appealing because it promotes energy security by reducing dependence on imported oil or gas.** However, over the past two years many environmental organizations and water management authorities in the United States have begun to argue that shale gas exploration has developed so rapidly that federal and state regulatory structures and industry practices have not kept pace and threats to water and air quality are growing. **The boom in shale gas production has led a number of states to revise their regulations on permitting and monitoring hydraulic fracturing**.[50] Underscoring the growing gridlock in the debate and low public trust, in August 2010 New York State passed a bill that mandated a 10-month ban on drilling in shale gas formations within the state due to concerns about drinking water. Regulating the shale gas industry is challenging for it is made up of many small companies that have not yet developed a culture of information sharing and collaboration to undertake self regulation akin to the U.S. nuclear power operators. Thus, clear messaging on the environmental performance of the industry has not been strong, despite repeated claims by America's Natural Gas Alliance that new federal regulations are not necessary on top of existing local, state and federal rules. Central to their argument is the belief that "state regulatory agencies have the appropriate expertise and on-the-ground experience to conduct effective oversight of natural gas production activities specific to their local geology." Former Pennsylvania State Environment Chief echoed the appropriateness of state-level regulation of fracking, citing the BP oil spill as a powerful example of how federal regulation on the oil and gas industry is not always effective.[51] The debate against shale gas operations became more contentious following the 2010 film Gasland and growing reports of communities complaining about water pollution and health problems around shale wells.[52] To date, such concerns have drowned out reports of how shale gas could promote considerable job creation in large plays such as the Marcellus Basin.[53] There have also been increasing news media coverage on growing ozone and other air pollution problems in communities where shale and other natural gas drilling has occurred.[54] Some recent moves to push for better regulation of this industry include: • In response to public complaints, the U.S. Environmental Protection Agency has initiated a major study into hydraulic fracturing to investigate the use of diesel in the process and other environmental impacts, particularly potential contamination of both surface and ground water resources.[55] This EPA study, which will be finished by 2014, will investigate the conditions associated with potential drinking water contamination, and its link to public health risks.[56] The study will likely determine the direction of the EPA's future regulation of hydraulic fracturing. • On January 21, 2011 twenty-three U.S. environmental groups sent a joint letter to President Obama to express their concern about the need to strengthen regulation of water pollution surrounding shale gas exploration. The central concern is to close gaps in the two key federal laws aimed at protecting water[57] —the Clean Water Act—which does not require hydraulic fracturing companies to minimize uncontaminated sediment pollution from the construction or operation shale gas operations—and the Safe Drinking Water Act, which since 2005 does not regulate the injection of fluids used in hydraulic fracturing for oil and gas development.[58] Except in cases where diesel fuel is used for hydraulic fracturing. • 36 percent of the Delaware River Basin is underlain by the Marcellus shale gas reserve and approximately 3,500 wells are currently in operation and a total of 15,000-18,000 horizontal wells are expected (8 horizontal wells per each vertical well).[59] In light of growing public complaints about water and traffic associated with the rapidly expanding hydraulic fracturing operations in the basin and concerns about the water and land needs for supporting this infrastructure, the Delaware River Basin Commission has been holding public hearings on new regulations for natural gas extraction in the basin. These proposed regulations aim to protect and manage water resources during the construction and operation of shale gas development projects within the basin. The proposed regulations are also expected to comply with the existing DRBC Compact and to supplement the Commission's Comprehensive Plan.[60] • Shale gas development is slow to take off in Europe. For example, environmental and water concerns have led France to slow down or stop shale gas development. Besides environmental concerns, the major obstacle is that in most European countries the subsurface rights belong to the crown or government and not to landowners on the surface. Thus, unlike the United States, private citizens in Europe do not enjoy any financial benefits of shale gas development and may only feel the negative environmental consequences of the wells. U.S. private landowners have more power vis-à-vis developers, in that private citizens can band together to trade access to the shale gas for more careful management of the environment while both the owner and the developer can benefit from the financial returns.[61] ***How the regulatory debate over shale gas drilling in the United States is resolved will likely have global environmental significance since countries such as China are following the U.S. lead in developing this sector.*** Moves to Build Multi-Stakeholder Consensus and Cleaner Technologies In a striking move to tone down the vitriolic debate, Southwestern Energy and Environmental Defense Fund have been working together to build a consensus among stakeholders to create a model regulatory framework for hydraulic fracturing. This framework document aims to build consensus among various stakeholders by suggesting components of state-level regulation that could improve the safety, regulation, and transparency of hydraulic fracturing. The project is in its nascent stages, but the negotiations the two have brokered have produced a 40-page draft of possible regulations that states officials can use as a model for requiring disclosure of hydraulic fracturing fluids and better monitoring of the integrity of underground wells. Besides improving well construction, some companies have been researching and developing technologies to save water through improved recycling and on-site water treatment for flow back water, as well as optimizing fracturing operations through modeling and use fewer additives in fracking fluids. [62] Halliburton has been developing a Chemical Scoring Index that assesses the relative health and environmental hazards of various fracturing fluids. The index will eventually rank various fluids and give operators a choice of which to use to lower the ecological footprint of drilling operations. **CONCLUDING THOUGHTS The United States and China are motivated to shale gas exploration for similar reasons—energy security, job creation, and (potentially) low carbon energy. But as the U.S. situation underscores, it is vital for this industry to build the trust of the public and prioritize lowering the environmental footprint of drilling operations—particularly in terms of greenhouse gas emissions** and water protection. China faces more extreme water quality and quantity problems than the United States and even with recycling hydraulic fracturing is a water-intense process that also can require considerable amounts of water to be transported in and out of the well site. Regulation, pricing, and environmental safeguards are likely to be larger challenges to shale gas production in China rather than technology acquisition and pipeline construction. For while pipelines are not yet in place for delivery of shale gas, the rapid construction of the west to east pipeline from Xinjiang to Shanghai demonstrated that when a decision is made the Chinese can build pipelines and other infrastructure rapidly.

***India will model US practices --- effective regulation prevents accidents that shut down production --- the impact is India’s economy and energy security***

**Maplecroft ’11** – Maplecroft's growing, international team of 75 multidisciplinary experts includes over 50 research analysts. All researchers hold masters or PhD qualifications from the world's leading academic institutions and each is a specialist in their field. Expertise encompasses regional and sectoral risk analysis, as well as political, economic, social and environmental risk issues, including human rights and climate change. Maplecroft's risk intelligence, including its unique interactive mapping platform, is delivered through innovative technology developed in-house by a large team of software engineers, GIS (Geographic Information Systems) experts, web and graphic designers. 9/26, Financial Times, India plans for shale gas development - weak governance and environmental impacts a key concern, <http://tilt.ft.com/#!posts/2011-09/31101/india-plans-shale-gas-development-weak-governance-environmental-impacts-key-concern>, jj

**India is set to benefit from engagement with industry experts from overseas. The government sought the expertise of the** US Geological Survey (**USGS**) through the signing of a memorandum of understanding in 2010. The USGS is expected to publish an assessment of India's shale gas potential by November. This will help in directing the development of a national shale gas policy framework and marks an important step towards the auction of exploration licenses, expected to take place in early 2012. **Cooperation with the USGS**, as well as with foreign energy groups, **will provide for the transfer of technical knowhow and insight into how best to manage the industry.**

Energy security gains

**India stands to gain considerably from shale gas development, not least by improving energy security**. ***The fulfilment of India's growth potential will depend on its ability to sustain a stable supply of energy to its burgeoning industries***. India is ranked 32 of 196 countries and categorised as a ‘high risk' country in Maplecroft's Energy Security (short term) Index, reflecting its current dependence on imported energy. According to the U.S. Energy Information Administration (EIA), net imports of natural gas to India amounted to 429 billion cubic feet in 2010. **If India can successfully locate and exploit any shale gas potential, it will contribute to a reduced reliance on imports from potentially unstable regions, such as the Middle East.**

Shale gas discoveries could also help India reduce its contribution to climate change. India is one of the most significant emitters of carbon dioxide, as demonstrated by its ranking of 30th in Maplecroft's CO2 Emission from Energy Use Index. This can largely be accounted for by the country's reliance on coal as a source of energy. According to figures published by the International Energy Agency (IEA), coal and peat account for over 40% of India's energy consumption. Natural gas, which when combusted emits around half as much carbon dioxide as coal, accounts for under 6% of energy consumption. A move towards greater natural gas consumption would help India reduce the environmental impacts of its development. However, **this potential could be undermined if the environmental impacts of shale gas exploitation are not kept to a minimum through responsible and well-regulated drilling practices.**

***Causes Indo/Pak nuclear war --- goes global***

**Bouton 10** (Marshall M., President – Chicago Council on Global Affairs, “America’s Interests in India”, CNAS Working Paper, October, http://www.cnas.org/files/documents/publications/CNAS\_USInterestsinIndia\_ Bouton.pdf)

In South Asia, the most immediately compelling U.S. interest is preventing terrorist attacks on the U.S. homeland originating in or facilitated by actors in South Asia, particularly in Afghanistan and Pakistan. To avert that possibility, **the United States** also **has an interest in the stability and development of both countries.** At the same time, **the United States has a vital interest in preventing conflict between Pakistan and India, immediately because such a conflict would do great damage to U.S. efforts in Afghanistan and Pakistan** (such as the diversion of Pakistani military attention away from the insurgency) **and because it would pose the severe risk of nuclear escalation.** Finally, **the United States has an interest in peace and stability in South Asia as a whole**. Instability and violence in nearly every one of India’s neighbors, not to mention in India itself, could, if unchecked, undermine economic and political progress, potentially destabilizing the entire region. At present, **a South Asia dominated by a politically stable and economically dynamic India is a hugely important counterweight to the prevalent instability and conflict all around India’s periphery**. Imagining the counterfactual scenario, **a South Asian region, including India, that is failing economically** and stumbling politically, **is to imagine instability on a scale that would have global consequences, including damage to the global economy, huge dislocations of people and humanitarian crisis, increasing extremism and terrorism, and much greater potential for unchecked interstate and civil conflict.**

***Indo Pak war outweighs --- causes extinction***

**Robock and Toon ‘09** [Alan and Owen Brian, “Local Nuclear War, Global Suffering”, Scientific American, <http://climate.envsci.rutgers.edu/pdf/RobockToonSciAmJan2010.pdf>]

***\*we don’t endorse ableist language***

Twenty-five years ago international teams of scientists showed that **a nuclear war between the U.S. and the Soviet Union could produce a “nuclear winter.” The smoke from vast fires started by bombs dropped on cit­ies and industrial areas would envelop the planet and absorb so much sunlight that the earth’s sur­face would get cold, dark and dry, killing plants worldwide and eliminating our food supply. Sur­face temperatures would reach winter values in the summer.** International discussion about this prediction, fueled largely by astronomer Carl Sa­gan, forced the leaders of the two superpowers to confront the possibility that **their arms race endangered not just themselves but the entire hu­man race**. Countries large and small demanded disarmament. Nuclear winter became an important factor in ending the nuclear arms race. Looking back later, in 2000, former Soviet Union leader Mikhail S. Gorbachev observed, “Models made by Russian and American scientists showed that **a nuclear war would result in a nuclear winter that would be extremely destructive to all life on earth**; the knowledge of that was a great stimulus to us, to people of honor and mo­rality, to act.” Why discuss this topic now that the cold war has ended? Because **as other nations continue to acquire nuclear weapons, smaller, regional nu­clear wars could create a similar global catastro­phe.** New analyses reveal that a **conflict be­tween India and Pakistan**, for example, **in which 100 nuclear bombs were dropped on cities and industrial areas—only 0.4 percent of the world’s more than 25,000 warheads—would produce enough smoke to ~~cripple~~ global agriculture. A regional war could cause widespread loss of life even in countries far away from the conflict.**

***Natural gas is key to Indian energy security***

Kaustav **Mukherjee and** Rahool **Panandiker**, 8-22-**12**, Boston Consulting Group, Natural Gas: The Achilles’ Heel of India’s Energy Security, <https://www.bcgperspectives.com/content/articles/energy_environment_natural_gas/>, jj

***Natural Gas: The Achilles’ Heel of India’s Energy Security***

**The gap between India’s natural-gas requirements and its domestically produced** natural-**gas supply is sizable—in fact, almost alarming**. A recent study by The Boston Consulting Group concluded that **the gap will only widen**, at least in the near term, with domestic supply potentially meeting less than half of domestic demand by 2015. **This shortfall could intensify the country’s already heavy reliance on coal, an increasingly expensive, relatively inefficient fuel source. More significantly, the supply shortfall could act as a brake on the country’s longer-term economic-growth prospects.**

***Energy security is key to India’s great power aspirations***

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**Energy security**—that is, the ability of a government to safely, reliably, and affordably supply adequate energy to its country—**is a necessary component of any state hoping to emerge as a global power. Such security reduces state vulnerability and provides the foundation for economic and military strength**.3 ***Energy security is thus a major concern for India*** that has necessitated a delicate balance of relationships amid the competing interests of the United States, Israel, and Iran. **India’s growing demand for resources, overreliance on Saudi Arabia for energy, and tense competition with China in energy-producing countries pose challenges** that necessitate keeping all options on the table.

***Successful rise of India checks multiple existential threats***

**KAMDAR** 20**07** (Mira Kamdar, World Policy Institute, 2007, Planet India: How the fastest growing democracy is transforming America and the world, p. 3-5)

**No other country matters more to the future of our planet than India**. **There is no challenge we face, no opportunity we covet where India does not have critical relevance**. **From combating global terror to finding cures for dangerous pandemics, from dealing with the energy crisis** to averting the worst scenarios of global warming, **from rebalancing stark global inequalities to spurring the vital innovation needed to create jobs and improve lives**—**India is now a pivotal player. The world is undergoing a process of profound recalibration in which the rise of Asia is the most important factor**. **India holds the key to this new world**. India is at once an ancient Asian civilization, a modern nation grounded in Enlightenment values and democratic institutions, and a rising twenty-first-century power. With a population of 1.2 billion, India is the world’s largest democracy. It is an open, vibrant society. India’s diverse population includes Hindus, Muslims, Sikhs, Christians, Buddhists, Jains, Zoroastrians, Jews, and animists. There are twenty-two official languages in India. Three hundred fifty million Indians speak English. India is the world in microcosm. Its geography encompasses every climate, from snowcapped Himalayas to palm-fringed beaches to deserts where nomads and camels roam. A developing country, India is divided among a tiny affluent minority, a rising middle class, and 800 million people who live on less than $2 per day. **India faces all the critical problems of our time**—extreme social inequality, employment insecurity, a growing energy crisis, severe water shortages, a degraded environment, global warming, a galloping HIV/AIDS epidemic, terrorist attacks—**on a scale that defies the imagination**. India’s goal is breathtaking in scope: transform a developing country of more than 1 billion people into a developed nation and global leader by 2020, and do this as a democracy in an era of resource scarcity and environmental degradation. **The world has to cheer India on. If India fails, there is a real risk that our world will become hostage to political chaos, war over dwindling resources, a poisoned environment, and galloping disease.** Wealthy enclaves will employ private companies to supply their needs and private militias to protect them from the poor massing at their gates. But, if India succeeds, it will demonstrate that it is possible to lift hundreds of millions of people out of poverty.  It will prove that multiethnic, multireligious democracy is not a luxury for rich societies.  **It will show us how to save our environment, and how to manage in a fractious, multipolar world.  India’s gambit is truly the venture of the century.**

**Contention 2 – Solvency**

***Plan causes state regulators to fill in – solves better***

**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

***States solve the multiple warrants for why federal regulations are insufficient***

Fed is unconcerned with production benefits --- states better able to forge agreement between environmental groups while working with production companies. Also better able to respond to emerging situations. Uncertainity about fed reg’s already slowing down fracking on federal lands – dropped 14% in past two years.

**Maddox, 12/1/12** (Mark, has held a variety of senior strategic policy, communications, and political positions during his 25-year career, and currently serves as the Senior Vice President of Government Affairs for Arcadian Networks, where he serves as chief strategist on government policy and as a member of the executive team. He is currently a member of the Gridwise Alliance Board of Directors.¶ Previously, he served as Assistant Secretary (acting) and head of the U.S. Department of Energy’s Fossil Energy program from 2004 to 2006. ¶ Maddox oversaw the development of many of the critical technologies that will be essential to controlling future green house gas emissions. He also managed a $750 million budget, and high profile initiatives including the FutureGen Zero Emissions Power Plant, He also served as a Senior Policy Advisor to the Secretary on fossil energy, environmental management, and budget issues. ¶ Additionally, Maddox worked in the Government and Public Affairs offices at Lockheed Martin as a director for the Integrated Management Systems division, Maddox received a Masters of Business Administration from George Washington University and earned an undergraduate degree from Bowling Green State University, OH. ¶ the Washington Examiner: “Let the States Regulate the Natural Gas Boom,” <http://americanactionnetwork.org/topic/let-states-regulate-natural-gas-boom>, ts)

One example in the 2012 presidential election was the shale gas critics justifying the Environmental Protection Agency's relentless push for a single, overarching federal law to regulate the entire industry. **They made *the dubious claim that one law is superior to a patchwork of 50 state regulations.¶ This language holds out hope for regulatory simplicity. But this approach, at least for natural gas, is misguided*.** It perpetuates the myth that there isn't already federal regulation of the oil and gas industry. In reality, **various parts of the drilling process are regulated under the Safe Drinking Water Act, Clean Water Act, Clean Air Act and others**.¶ Additionally, the **U.S. Department of Energy and the EPA fund the State Review of Oil & Natural Gas Environmental Regulations program and the Ground Water Protection Program, which audit state regulatory programs and share best practices.** **In fact, the Secretary of Energy Advisory Board's report on fracking supported continued state oversight through these programs and called for additional funding of these programs in its report last year**.¶ Though broad, simple campaign declarations sound great, they fail to take into consideration that **each company -- in whatever industry a policy regulates -- is very different. Even the shale fields themselves differ greatly in terms of geology, topography and hydrology from state to state. Shale gas deposits are different in Pennsylvania's Marcellus, Ohio's Utica, and Texas' Barnett deposits**. Because of this, **drilling strategies need to be tailored to individual circumstances**.¶ So the question is, **how do you create a master set of federal regulations that can efficiently and effectively balance safety and resource development when every case is different? *The simple truth is you can't*.¶ A one-size-fits-all approach would probably require a federal waiver for every shale gas field permit. Even in a perfect world, getting a permit under any federal rule is time-consuming and expensive**. **But to obtain a federal permit through a waiver process only compounds the difficulty.¶** In practice, ***states are also usually more sensitive to overregulation*. At the federal level, the benefits of production are of secondary concern, and no federal regulator is accountable for the impact of decreased production.** In contrast, ***state legislatures from both parties in places as different as Ohio, Pennsylvania, Colorado and Texas have effectively engaged stakeholders, from the environmental community to the producing community, to craft effective laws*.** **In each of those states, lawmakers identified the need to set rules for shale gas exploration early in the process, and to address in legislation chemical disclosure requirements that balance the need for public transparency and protection of trade-sensitive information**.¶ ***Another benefit of state over federal regulation is the states' ability to respond to emerging issues***. **As Washington still wrestled with what role government should play, state governments had already established well-engineering standards, cleanup requirements, water guidelines, local government revenue sharing and clear guidelines in the permitting process**.¶ **The growth in natural gas production occurring under state regulation contrasts dramatically with the trend on federal lands. According to the U.S. Energy Information Administration, onshore federal natural gas production has dropped the past two years as its share of our natural gas production has dropped from 35 percent to 21 percent, a track record that is hardly comforting for federal regulation skeptics**.¶ Ultimately, **if the EPA continues to limit coal** generation **and pursues an "all in" strategy with natural gas** generation, **it must stop working at cross purposes with itself. The best way is drop out of this debate and let individual states do what the federal government cannot.**

***Race-to-the-bottom doesn’t apply to state fracking regulations***

The states can’t race to the bottom --- there necessarily has to be different regs in different states ---the gas cant move

**Spence ‘12**

David B. Spence, Prof. of Law, Politics & Regulation, University of Texas at Austin, Northwestern Law School's Searle Center Conference, Federalism, Regulatory Lags, and Energy Production,

<http://www.law.northwestern.edu/searlecenter/papers/Spence_Federalism_Energy_3-4.pdf>, jj

**Decisions governing** shale **gas regulation are unlike the typical race to the bottom scenario, such as a decision to locate a new manufacturing plant in one of several candidate states. In the latter case, multiple states compete for a single** (or small number of) **large and long-lived capital investments**. **One** (or a few **can win**), **most will lose**. **While the manufacturing plant can be constructed** (absence legal impediments) almost **anywhere, hydraulic fracturing occurs only where shale gas deposits are found**, and companies will invest in natural gas production wherever gas can be profitably produced. **Investment in production in one state does not preclude simultaneous investment in another**; to the contrary, companies will invest simultaneously in hundreds or thousands of wells. **States are not chasing limited investment capital**, as in the usual race to the bottom scenario; rather, in shale gas production, investment capital is chasing production opportunities. Thus, **a state does not risk losing the economic benefits of shale gas development unless the regulatory costs it imposes on production are sufficient to render otherwise profitable production unprofitable. Even then, the state does not lose that capital to another state** forevermore; **that capital may yet return** when and **if natural gas prices increase** sufficiently to make production profitable within the state. **Thus, state regulation of natural gas production ought not to be characterized by a race to the bottom.** On the other hand, there is at least a theoretical argument that unless the costs and benefits of shale gas production are evenly distributed throughout the state, state regulators may tend to under-regulate because those who bear the costs of fracking are outnumbered by those who do not. Consider Figure 1, which depicts a potentially productive shale gas area within the hypothetical "ABC State." Consistent with the discussion in the previous section, most of the external costs of shale gas production will fall primarily on the residents of Alphaville, though we might imagine some costs falling beyond the boundaries of Alphaville. Of course, Alphaville will capture some of the benefits of shale gas development as well, in the form of royalty payments to landowners, jobs, and the indirect economic benefits of production. The residents of Betavilla, Gammaville, and Deltaville may also capture some of the benefits of production, including some of the ripple effects (secondary economic effects and state budgetary effects) of shale gas production. If the costs are more closely concentrated near the shale gas production area (in Alphaville) than the benefits, it may be that the more numerous residents of Betavilla, Gammaville, and Deltaville will cast their vote in favor of relatively light regulation, outvoting their Alphaville counterparts. In that case, the residents of Alphaville may be forced to suffer externalities that would have been outlawed or more closely regulated if they had fallen upon a majority of the residents of ABC State. One solution would be to permit local governments to retain a veto over shale gas production within their borders. That way, those closest to the costs and benefits will be able to dominate the policy decision. Indeed, the countless local debates taking place nationwide over whether to permit shale gas development, while heated, seem to reflect the very sort of political conflict (over the relative merits of development versus environmental protection) that one might expect to see in a well functioning local democracy. 268 On the other hand, providing local jurisdictions with a veto over shale gas production creates the potential for overregulation, because it creates the possibility that development with positive social net benefits can be vetoed by locals who bear most of the costs of development. The real problem is that the distribution of the costs and benefits of production will never fall neatly within the boundaries of any political jurisdiction. 269 How, then, to address the risks of under- or over-regulation caused by geographically mismatched costs and benefits? One possible solution to the problem of under-regulation is for the winners (those who benefit from development) to compensate the losers) those who bear the external costs). However, compensation is a much neater solution theoretically than practically, in part because of moral hazard problems and political distortions. 270 **We might resolve this question by asking whether under-regulation or over-regulation is the bigger problem**? **If shale gas development is left to states** and their political subdivisions to sort out, **the danger of overregulation appears to be fairly remote**, **because most of the costs and benefits of production will be experienced by voters within the** (potentially) **regulating jurisdiction**. Despite some states’ home rule provisions, states can preempt local law, and it seems unlikely that local vetoes will prevent positive net benefit shale gas development for long. **If under-regulation is likely to be the more common problem, it is difficult to see how federal regulation can help, since the mismatch between the set of people who bear the costs and those who reap the benefits is even greater at the national level**. 271 Moreover, in some shale gas producing states (like those of the Marcellus Shale), producing areas are fairly widely distributed, reducing the intrastate geographic mismatches between the relative distributions of costs and benefits pictured in Figure 1. For all of these reasons, **a race to the bottom rationale for federal regulation of hydraulic fracturing is not a persuasive one.**

***State regs are qualitatively better***

Jonathan H. **Adler**, Professor of Law and Co-Director, Center for Business Law and Regulation, Case Western Reserve University School of Law, “WHEN IS TWO A CROWD? THE IMPACT OF FEDERAL ACTION ON STATE ENVIRONMENTAL REGULATION”, Harvard Environmental Law Review, May 1st 20**06**, http://www.law.harvard.edu/students/orgs/elr/vol31\_1/adler.pdf

Up until this point, this Article has discussed environmental protection in a two-dimensional fashion, focusing on quantitative changes in regulatory protection. This vastly oversimplifies the relevant analysis, as various regulatory programs will vary in both quantitative and qualitative terms. 143 Two programs that appear to adopt the same quantitative level of environmental protection, such as the same ambient standard or emission limit, may vary quite significantly in cost, effectiveness, equitableness, and external effects on other media. Conversely, two programs that adopt superficially disparate goals may, in fact, offer qualitatively similar environmental protection. For these reasons, any complete analysis must acknowledge that environmental measures vary in both qualitative and quantitative ways. **There are several factors that may cause state-level environmental regulations to be more** cost-effective, or otherwise **qualitatively superior, than federal regulations of equivalent cost or scope**. 144 **First,** and perhaps most important, **state policy-makers and regulators may have access to knowledge of local problems and conditions**. 145 **Consideration of such knowledge in the development and implementation of state regulatory programs may increase the protectiveness of existing programs without increasing their cost or scope**. **Second, state policy-makers, because they are closer both to the environmental problems they seek to address and the regulated community, may be more responsive to local needs and concerns**. Third, **insofar as environmental problems vary from place to place, state policy-makers may be able to focus state resources on environmental problems that exist in a given state**. **Federal standards, on the other hand, tend to impose broad *one-size-fits-all* requirements that, in actuality, often fit no state particularly well**. 146 **A regulatory requirement that makes perfect sense in one state may not provide much environmental protection in another**. Fourth, **the existence of a federal standard may inhibit the ability of (or incentive for) state policy-makers to innovate or experiment with different approaches to meeting a given environmental goal**. 147 **There is *empirical evidence* that**, at least in some areas, **state regulation may do a better job of addressing local environmental concerns in a cost-effective manner**. Several **states clean up abandoned hazardous waste sites at lower cost and more rapidly than the federal Superfund program**. 148 Similarly, federal regulations may hinder the adoption of more effective pollution control or resource conservation strategies, and state policy-makers may be more sensitive to such concerns. **The federal CAA requires many states to adopt suboptimal pollution control strategies when equally stringent—but differently targeted—measures would produce better results**. 149 In the wetlands context, states took the lead in evaluating wetland functions and incorporating the ecological value of particular wetlands into the regulatory process when there was no evidence that similar considerations entered the federal permitting process. 150 In other words, **at a given level of stringency, some states were beginning to incorporate ecological considerations so as to maximize the environmental value of regulations** on wetland development **when the federal government was doing no such thing. States need not regulate “more” than the federal government to provide greater levels of environmental protection. Better regulation**—that is, environmental protection measures that are qualitatively different—**may be sufficient in some instances to improve the level of environmental protection. Insofar as federal regulation encourages states to adopt a particular approach to environmental protection,** or discourages states from adopting programs more suited to specific state conditions, **it can reduce aggregate environmental protection**. **Just as the federal government’s regulatory programs may discourage more extensive state regulatory efforts, these programs may also discourage the adoption of qualitatively preferable state level programs that may differ more in kind than in their degree of stringency.**

***State regulations are better for the environment***

**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.**

***No renewables tradeoff***

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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.**