## 1ac day one – the first

### Manufacturing

#### ADVANTAGE ONE IS MANUFACTURING

#### Shale is terminally unsustainable – conventional gas key to avert price spikes and domino effects across the industry

Engdahl, 3/13/13 [William, an [American](http://en.wikipedia.org/wiki/United_States) [German](http://en.wikipedia.org/wiki/Germans) freelance journalist, [historian](http://en.wikipedia.org/wiki/Historian) and economic researcher, a degree in engineering and jurisprudence from [Princeton University](http://en.wikipedia.org/wiki/Princeton_University) in 1966 ([BA](http://en.wikipedia.org/wiki/Bachelor_of_Arts)), and graduate study in comparative economics at the [University of Stockholm](http://en.wikipedia.org/wiki/University_of_Stockholm) from 1969 to 1970, he worked as an economist and in Europe. His first book was called *A Century of War: Anglo-American Oil Politics and the New World Order*, and discusses the alleged roles of [Zbigniew Brzezinski](http://en.wikipedia.org/wiki/Zbigniew_Brzezinski) and [George Ball](http://en.wikipedia.org/wiki/George_Wildman_Ball) and [of the USA](http://en.wikipedia.org/wiki/CIA_Activities_by_Region%3A_Near_East%2C_North_Africa%2C_South_and_Southwest_Asia#Iran_1980) in the [1979 overthrow of the Shah of Iran](http://en.wikipedia.org/wiki/Iranian_Revolution), which was meant to manipulate oil prices and to stop Soviet expansion. Engdahl claims that Brzezinski and Ball used the Islamic [Balkanization](http://en.wikipedia.org/wiki/Balkanization) model proposed by [Bernard Lewis](http://en.wikipedia.org/wiki/Bernard_Lewis). In 2007, he completed *Seeds of Destruction: The Hidden Agenda of* [*Genetic Manipulation*](http://en.wikipedia.org/wiki/GMO).

Engdahl is also a frequent contributor to the website of the Centre for Research on Globalization.

William Engdahl has been married since 1987, and has been living for more than two decades near [Frankfurt am Main](http://en.wikipedia.org/wiki/Frankfurt_am_Main), Germany., The Fracked-up USA Shale Gas Bubble, <http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504>]

Shale gas has recently come onto the gas market in the US via use of several combined techniques developed among others by Dick Cheney’s old company, Halliburton Inc. Halliburton several years ago combined new methods for drilling in a horizontal direction with injection of chemicals and “fracking,” or hydraulic fracturing of the shale rock formations that often trap volumes of natural gas. Until certain changes in the last few years, shale gas was considered uneconomical. Because of the extraction method, shale gas is dubbed unconventional and is extracted in far different ways from conventional gas. The US Department of Energy’ EIA defines conventional oil and gas as oil and gas “produced by a well drilled into a geologic formation in which the reservoir and fluid characteristics permit the oil and natural gas to readily flow to the wellbore.” Conversely, unconventional hydrocarbon production doesn’t meet these criteria, either because geological formations present a very low level of porosity and permeability, or because the fluids have a density approaching or even exceeding that of water, so that they cannot be produced, transported, and refined by conventional methods. By definition then, unconventional oil and gas are far more costly and difficult to extract than conventional, one reason they only became attractive when oil prices soared above $100 a barrel in early 2008 and more or less remained there. To extract the unconventional shale gas, a hydraulic fracture is formed by pumping a fracturing fluid into the wellbore at sufficient pressure causing the porous shale rock strata to crack. The fracture fluid, whose precise contents are usually company secret and extremely toxic, continues further into the rock, extending the crack. The trick is to then prevent the fracture from closing and ending the supply of gas or oil to the well. Because in a typical fracked well fluid volumes number in millions of gallons of water, water mixed with toxic chemicals, fluid leak-off or loss of fracturing fluid from the fracture channel into the surrounding permeable rock takes place. If not controlled properly, that fluid leak-off can exceed 70% of the injected volume resulting in formation matrix damage, adverse formation fluid interactions, or altered fracture geometry and thereby decreased production efficiency.[[7]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn7) Hydraulic fracturing has recently become the preferred US method of extracting unconventional oil and gas resources. In North America, some estimate that hydraulic fracturing will account for nearly 70% of natural gas development in the future. Why have we just now seen the boom in fracking shale rock to get gas and oil? Thank then-Vice president Dick Cheney and friends. The real reason for the recent explosion of fracking in the United States was passage of legislation in 2005 by the US Congress that exempted the oil industry’s hydraulic fracking, astonishing as it sounds, from any regulatory supervision by the US Environmental Protection Agency (EPA) under the Safe Drinking Water Act. The oil and gas industry is the only industry in America that is allowed by EPA to inject known hazardous materials – unchecked – directly into or adjacent to underground drinking water supplies.[[8]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn8) The 2005 law is known as the “Halliburton Loophole.” That’s because it was introduced on massive lobbying pressure from the company that produces the lion’s share of chemical hydraulic fracking fluids – Dick Cheney’s old company, Halliburton. When he became Vice President under George W. Bush in early 2001, Cheney immediately got Presidential responsibility for a major Energy Task Force to make a comprehensive national energy strategy. Aside from looking at Iraq oil potentials as documents later revealed, the energy task force used Cheney’s considerable political muscle and industry lobbying money to win exemption from the Safe Drinking Water Act. [[9]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn9) During Cheney’s term as vice president he moved to make sure the Government’s Environmental Protection Agency (EPA) would give a green light to a major expansion of shale gas drilling in the US. In 2004 the EPA issued a study of the environmental effects of fracking. That study has been called “scientifically unsound” by EPA whistleblower Weston Wilson. In March of 2005, EPA Inspector General Nikki Tinsley found enough evidence of potential mishandling of the EPA hydraulic fracturing study to justify a review of Wilson’s complaints. The Oil and Gas Accountability Project conducted a review of the EPA study which found that EPA removed information from earlier drafts that suggested unregulated fracturing poses a threat to human health, and that the Agency did not include information that suggests “fracturing fluids may pose a threat to drinking water long after drilling operations are completed.”[[10]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn10) Under political pressure the report was ignored. Fracking went full-speed ahead. The Halliburton Loophole is no minor affair. The process of hydraulic fracking to extract gas involves staggering volumes of water and of some of the most toxic chemicals known. Water is essential to shale gas fracking. Hydraulic fracturing uses between 1.2 and 3.5 million US gallons (4.5 and 13 million liters) of water per well, with large projects using up to 5 million US gallons (19 Million liters). Additional water is used when wells are refractured; this may be done several times. An average well requires 3 to 8 million US gallons of water over its lifetime.[[11]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn11) Entire farm regions of Pennsylvania and other states with widespread hydraulic fracking report their well water sources have become so toxic as to make the water undrinkable. In some cases fracked gas seeps into the home via the normal water faucet. During the uproar over the BP Deepwater Horizon Gulf of Mexico oil spill, the Obama Administration and the Energy Department formed an Advisory Commission on Shale Gas, ostensibly to examine the growing charges of environmental hazards from shale gas practices. Their report was released in November 2011. It was what could only be called a “whitewash” of the dangers and benefits of shale gas. The commission was headed by former CIA director John M. Deutch. Deutch himself is not neutral. He sits on the board of the LNG gas company Cheniere Energy. Deutch’s Cheniere Energy’s Sabine Pass project is one of only two current US projects to create an LNG terminal to export US shale gas to foreign markets.[[12]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn12) Deutch is also on the board of Citigroup, one of the world’s most active energy industry banks, tied to the Rockefeller family. He also sits on the board of Schlumberger, which along with Halliburton, is one of the leading companies doing hydraulic fracking. In fact, of the seven panel members, six had ties to the energy industry, including fellow Deutch panel member and shale fracking booster, Daniel Yergin, himself a member of the National Petroleum Council. Little surprise that the Deutch report called shale gas, “the best piece of news about energy in the last 50 years.” Deutch added, “Over the long term it has the potential to displace liquid fuels in the United States.” [[13]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn13) **Shale gas: Racing against the Clock** With regulatory free-rein, now also backed by the Obama Administration, the US oil and gas industry went full-power into shale gas extraction, taking advantage of high oil and natural gas prices to reap billions in quick gains. According to official US Department of Energy Energy Information Administration data, shale gas extraction ballooned from just under 2 million MCF in 2007, the first year data was tracked, to more than 8,500,000 Mcf by 2011, a fourfold rise to comprise almost 40% of total dry natural gas extraction in the USA that year. In 2002 shale gas was a mere 3% of total gas.[[14]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn14) Here enters the paradox of the US “shale gas revolution.” Since the days of oil production wars more than a century ago, various industry initiatives had been created to prevent oil and later gas price collapse due to over-production. During the 1930’s there was discovery of the huge East Texas oilfields, and a collapse of oil prices. The State of Texas, whose Railroad Commission (TRC) had been given regulatory powers not only over railroads but also over oil and gas production in what then was the world’s most important oil producing region, was called in to arbitrate the oil wars. That resulted in daily statewide production quotas so successful that OPEC later modeled itself on the TRC experience. Today, with federal deregulation of the oil and gas industry, such extraction controls are absent as every shale gas producer from BP to Chesapeake Energy, Anadarko Petroleum, Chevron, Encana and others all raced full-tilt to extract the maximum shale gas from their properties. The reason for the full-throttle extraction is telling. Shale Gas, unlike conventional gas, depletes dramatically faster owing to its specific geological location. It diffuses and becomes impossible to extract without the drilling of costly new wells. The result of the rapidly rising volumes of shale gas suddenly on the market was a devastating collapse in the market price of that same gas. In 2005 when Cheney got the EPA exemption that began the shale boom, the marker US gas price measured at Henry Hub in Louisiana, at the intersection of nine interstate pipelines, was some $14 per thousand cubic feet. By February 2011 it had plunged amid a gas glut to $3.88. Currently prices hover around $3.50 per tcf.[[15]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn15) In a sobering report, Arthur Berman, a veteran petroleum geologist specialized in well assessment, using existing well extraction data for major shale gas regions in the US since the boom started, reached sobering conclusions. His findings point to a new Ponzi scheme which well might play out in a colossal gas bust over the next months or at best, the next two or three years. Shale gas is anything but the “energy revolution” that will give US consumers or the world gas for 100 years as President Obama was told. Berman wrote already in 2011, “Facts indicate that most wells are not commercial at current gas prices and require prices at least in the range of $8.00 to $9.00/mcf to break even on full-cycle prices, and $5.00 to $6.00/mcf on point-forward prices. Our price forecasts ($4.00-4.55/mcf average through 2012) are below $8.00/mcf for the next 18 months. It is, therefore, possible that some producers will be unable tomaintain present drilling levels from cash flow, joint ventures, asset sales and stock offerings.” [[16]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn16) Berman continued, “Decline rates indicate that a decrease in drilling by any of the major producers in the shale gas plays would reveal the insecurity of supply. This is especially true in the case of the Haynesville Shale play where initial rates are about three times higher than in the Barnett or Fayetteville. Already, rig rates are dropping in the Haynesville as operators shift emphasis to more liquid-prone objectives that have even lower gas rates. This might create doubt about the paradigm of cheap and abundant shale gas supply and have a cascading effect on confidence and capital availability.” [[17]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn17) What Berman and others have also concluded is that the gas industry key players and their Wall Street bankers backing the shale boom have grossly inflated the volumes of recoverable shale gas reserves and hence its expected supply duration. He notes, “Reserves and economics depend on estimated ultimate recoveries (EUR) based on hyperbolic, or increasingly flattening, decline profiles that predict decades of commercial production. With only a few years of production history in most of these plays, this model has not been shown to be correct, and may be overly optimistic….Our analysis of shale gas well decline trends indicates that the Estimated Ultimate Recovery per well is approximately one-half the values commonly presented by operators.” [[18]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn18) In brief, the gas producers have built the illusion that their unconventional and increasingly costly shale gas will last for decades. Basing his analysis on actual well data from major shale gas regions in the US, Berman concludes however, that the shale gas wells decline in production volumes at an exponential rate and are liable to run out far faster than being hyped to the market. Could this be the reason financially exposed US shale gas producers, loaded with billions of dollars in potential lease properties bought during the peak of prices, have recently been desperately trying to sell off their shale properties to naïve foreign or other investors? Berman concludes: Three decades of natural gas extraction from tight sandstone and coal-bed methane show that profits are marginal in low permeability reservoirs. Shale reservoirs have orders of magnitude lower reservoir permeability than tight sandstone and coal-bed methane. So why do smart analysts blindly accept that commercial results in shale plays should be different? The simple answer is found in high initial production rates. Unfortunately, these high initial rates are made up for by shorter lifespan wells and additional costs associated with well re-stimulation. Those who expect the long-term unit cost of shale gas to be less than that of other unconventional gas resources will be disappointed…the true structural cost of shale gas production is higher than present prices can support ($4.15/mcf average price for the year ending July 30, 2011), and that per-well reserves are about one-half of the volumes claimed by operators. [[19]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn19) Therein lies the explanation for why a sophisticated oil industry in the United States has desperately been producing full-throttle, in a high-stakes game laying the seeds of their own bankruptcy in the process—They are racing to offload the increasingly unprofitable shale assets before the bubble finally bursts. Wall Street financial backers are in on the Ponzi game with billions at stake, much as in the recent real estate securitization fraud. One Hundred Years of Gas? Where then did someone get the number to tell the US President that America had 100 years of gas supply? Here is where lies, damn lies and statistics play a crucial role. The US does not have 100 years of natural gas supply from shale or unconventional sources. That number came from a deliberate blurring by someone of the fundamental difference between what in oil and gas is termed resources and what is called reserves. A gas or oil resource is the totality of the gas or oil originally existing on or within the earth’s crust in naturally occurring accumulations, including discovered and undiscovered, recoverable and unrecoverable. It is the total estimate, irrespective of whether the gas or oil is commercially recoverable. It’s also the least interesting number for extraction. On the other hand “recoverable” oil or gas refers to the estimated volume commercially extractable with a specific technically feasible recovery project, a drilling plan, fracking program and the like. The industry breaks the resources into three categories: reserves, which are discovered and commercially recoverable; contingent resources, which are discovered and potentially recoverable but sub-commercial or non-economic in today’s cost-benefit regime; and prospective resources, which are undiscovered and only potentially recoverable.[[20]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn20) The Potential Gas Committee (PGC), the standard for US gas resource assessments, uses three categories of technically recoverable gas resources, including shale gas: probable, possible and speculative. According to careful examination of the numbers it is clear that the President, his advisers and others have taken the PGC’s latest total of all three categories, or 2,170 trillion cubic feet (Tcf) of gas—probable, possible and purely speculative—and divided by the 2010 annual consumption of 24 Tcf. To get a number between 90 and 100 years of gas. What is conveniently left unsaid is that most of that total resource is in accumulations too small to be produced at any price, inaccessible to drilling, or is too deep to recover economically.[[21]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn21) Arthur Berman in another analysis points out that if we use more conservative and realistic assumptions such as the PGC does in its detailed assessment, more relevant is the Committee’s probable mean resources value of 550 (Tcf) of gas. In turn, if we estimate, also conservatively and realistically based on experience, that about half of this resource actually becomes a reserve (225 Tcf), then the US has approximately 11.5 years of potential future gas supply at present consumption rates. If we include proved reserves of 273 Tcf, there is an additional 11.5 years of supply for a total of almost 23 years. It is worth noting that proved reserves include proved undeveloped reserves which may or may not be produced depending on economics, so even 23 years of supply is tenuous. If consumption increases, this supply will be exhausted in less than 23 years.[[22]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn22) There are also widely differing estimates within the US Government over shale gas recoverable resources. The US Department of Energy EIA uses a very generous calculation for shale gas average recovery efficiency of 13% versus other conservative estimates of about half that or 7% in contrast to recovery efficiencies of 75-80% for conventional gas fields. The generously high recovery efficiency values used for EIA calculations allows the EIA to project an estimate of 482 tcf of recoverable gas for the US. In August 2011, the Interior Department’s US Geological Survey (USGS) released a far more sober estimate for the large shale plays in Pennsylvania and New York called Marcellus Shale. The USGS estimated there are about 84 trillion cubic feet of technically-recoverable natural gas under the Marcellus Shale. Previous estimates from the Energy Information Administration put the figures at 410 trillion cubic feet.[[23]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn23) Shale gas plays show unusually high field decline rates with very steep trends, a combination giving low recovery efficiencies. [[24]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn24) Huge shale gas losses Given the abnormally rapid well decline rates and low recovery efficiencies, it is little wonder that once the euphoria subsided, shale gas producers found themselves sitting on a financial time-bomb and began selling assets to unwary investors as fast as possible. In a very recent analysis of the actual results of several years of shale gas extraction in the USA as well as the huge and high-cost Canadian Tar Sands oil, David Hughes notes, “Shale gas production has grown explosively to account for nearly 40 percent of US natural gas production. Nevertheless, production has been on a plateau since December 2011; 80 percent of shale gas production comes from five plays, several of which are in decline. The very high decline rates of shale gas wells require continuous inputs of capital—estimated at $42 billion per year to drill more than 7,000 wells—in order to maintain production. In comparison, the value of shale gas produced in 2012 was just $32.5 billion.”[[25]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn25) He adds, “The best shale plays, like the Haynesville (which is already in decline) are relatively rare, and the number of wells and capital input required to maintain production will increase going forward as the best areas within these plays are depleted. High collateral environmental impacts have been followed by pushback from citizens, resulting in moratoriums in New York State and Maryland and protests in other states. Shale gas production growth has been offset by declines in conventional gas production, resulting in only modest gas production growth overall. Moreover, the basic economic viability of many shale gas plays is questionable in the current gas price environment.”[[26]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn26) If these various estimates are anywhere near accurate, the USA has a resource in unconventional shale gas of anywhere between 11 years and 23 years duration and unconventional oil of perhaps a decade before entering steep decline. The recent rhetoric about US “energy independence” at the current technological state is utter nonsense. The drilling boom which resulted in this recent glut of shale gas was in part motivated by “held-by-production” shale lease deals with landowners. In such deals the gas company is required to begin drilling in a lease running typically 3-5 years, or forfeit. In the US landowners such as farmers or ranchers typically hold subsurface mineral rights and can lease them out to oil companies. The gas (or oil) company then is under enormous pressure to book gas reserves on the new leases to support company stock prices on the stock market against which it has borrowed heavily to drill. This “drill or lose it” pressure typically has led companies to seek the juiciest “sweet spots” for fast spectacular gas flows. These are then typically promoted as “typical” of the entire play. However, as Hughes points out, “High productivity shale plays are not ubiquitous, and relatively small sweet spots within plays offer the most potential. Six of thirty shale plays provide 88 percent of production. Individual well decline rates are high, ranging from 79 to 95 percent after 36 months. Although some wells can be extremely productive, they are typically a small percentage of the total and are concentrated in sweet spots.” [[27]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn27) One estimate of projected shale gas decline suggests the peak will pass well before the end of the decade, perhaps in four years, followed with a rapid decline in volume The extremely rapid overall gas field declines require from 30 to 50 percent of production to be replaced annually with more drilling, a classic “tiger chasing its tail around the tree” syndrome. This translates to $42 billion of annual capital investment just to maintain current production. By comparison, all USA shale gas produced in 2012 was worth about $32.5 billion at a gas price of $3.40/mcf (which is higher than actual well head prices for most of 2012). That means about a net $10 billion loss on their shale gambles last year for all US shale gas producers. Even worse, Hughes points out that capital inputs to offset field decline will necessarily increase going forward as the sweet spots within plays are drilled off and drilling moves to lower quality areas. Average well quality (as measured by initial productivity) has fallen nearly 20 percent in the Haynesville, the most productive shale gas play in the US. And it is falling or flat in eight of the top ten plays. Overall well quality is declining for 36 percent of US shale gas production and is flat for 34 percent.[[28]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn28) Not surprising in this context, the major shale gas players have been making massive write-downs of their assets to reflect the new reality. Companies began in 2012 reassessing their reserves and, in the face of a gas spot price that was cut in half between July 2011 and July 2012, are being forced to admit that the long-term outlook for natural-gas prices is not positive. The write-downs have a domino effect as bank lending is typically tied to a company’s reserves meaning many companies are being forced to renegotiate credit lines or make distress asset sales to raise cash. Beginning August 2012, many large shale gas producers in the US were forced to announce major write-downs of the value of their shale gas assets. BP announced write-downs of $4.8 billion, including a $1 billion-plus reduction in the value of its American shale gas assets. England’s BG Group made a $1.3 billion write-down of its US shale gas interests, and Encana, a large Canadian shale gas operator made a $1.7 billion write-down on shale assets in the US and Canada, accompanied by a warning that more were likely if gas prices did not recover. [[29]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn29) The Australian mining giant BHP Billiton is one of the worst hit in the US shale gas bubble as it came in late and big-time. In May, 2012 it announced it was considering taking impairments on the value its US shale-gas assets which it had bought at the peak of the shale gas boom in 2011, when the company paid $4.75 billion to buy shale projects from Chesapeake Energy and acquiring Petrohawk Energy for $15.1 billion.[[30]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn30) But by far the worst hit is the once-superstar of shale gas, Oklahoma-based Chesapeake Energy. Part VI: Chesapeake Energy: The Next Enron? The company by most accounts that typifies this shale gas boom-bust bubble is the much-hailed leading player in shale, Chesapeake Energy. In August 2012 there were widespread rumors that the company would declare bankruptcy. That would have been embarrassing for the company that was the nation’s second largest gas producer. It would also have signaled to the world the hype that was behind promotion of a “shale energy revolution” from the likes of Yergin and the Wall Street energy promoters looking to earn billions on M&A and other deals in the sector to replace their dismal real estate experiences. In May 2012, Bill Powers of the Powers Energy Investor, wrote of Chesapeake (CHK by its stock symbl): “Over the past year, however, CHK’s business model has broken down. The company’s shares continue to break to 52-week lows and the company has a funding issue—financial speak for the company is running out of money. While it was able to farm-out a portion of its Utica Shale assets in Ohio to France’s Total last year—this is remarkable given the accounting errors that resulted in Total receiving significantly less revenue from their Barnett Shale joint-venture—CHK has largely run out of prospective acreage to farm-out.” Powers estimated a $3 billion cash shortfall in 2012 for the company. That comes atop already huge corporate debt of $11.1 billion of which $1.7 billion was a revolving line of credit. [[31]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn31) Powers adds, “When the off-balance sheet debt and preferred issues are added to the company’s existing $11.1 billion of on-balance sheet debt, CHK’s has a whopping $20.5 billion of financial obligations. Given such a high level of indebtedness, CHK debt is rated junk and will be for the foreseeable future. “ He concludes, “Having America’s second largest natural gas producer as well as its most reckless destroyer of shareholder capital almost completely walk away from the shale gas business is a great indication that today’s natural gas price bubble is on the verge of popping. CHK has not made any money by drilling shale wells—and neither have virtually any of its peers—and now the dumb money has run out.” [[32]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn32) Angry shareholders forced a major shakeup of the Chesapeake board last September after a Reuters report that CEO Aubrey McClendon had been taking out large loans not fully disclosed to the company’s board or investors. McClendon was forced to resign as Chairman of the company he founded after details leaked out that McClendon has borrowed as much as $1.1 billion in the last three years by pledging his stake in the company’s oil and natural gas wells as collateral.[[33]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn33) In March 2013 the US Government Securities and Exchange Commission (SEC) announced that it was investigating the company and Chief Executive Aubrey McClendon and had issued subpoenas for information and testimony, among other items looking into a controversial program that grants McClendon a share in every well that Chesapeake drills.[[34]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn34) The company is in the midst of a major asset sale of an estimated $6.9 billion to lower debt, including oil and gasfields covering roughly 2.4 million acres. It must invest heavily in drilling new wells to deliver the increased production of more lucrative oil and natural gas liquids, if it is to avoid bankruptcy.[[35]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn35) As one critical analyst of Chesapeake put it, “the company’s complex accounting methods make it almost impossible for analysts and stockholders to determine what the risks really are. The fact that the CEO is taking out billion-dollar loans and not openly disclosing them only furthers the perception that everything is not as it appears at Chesapeake – that the company is Enron with drilling rigs.” [[36]](http://www.globalresearch.ca/the-fracked-up-usa-shale-gas-bubble/5326504#_edn36) The much-touted shale gas revolution in the USA is collapsing along with the stock shares of Chesapeake and other key players.

#### And, that ensures catastrophic price spikes

Maize, 12/1/12 [“Is Shale Gas Shallow or the Real Deal?”, Kennedy, Veteran Journalist Kennedy Maize has spent the past 40 years working as a journalist, analyst, and manager in the private sector and federal government, with over 35 years of that focused on energy and environmental topics. Over that time, he has seen myriad examples of how group think, policy fads, and bad judgment can result in colossal failures, particularly in the field of atomic energy. Maize has seen, up close and personal, the demise of the U.S. Atomic Energy Commission, the arrival of the U.S. Nuclear Regulatory Commission, the birth of the U.S. Department of Energy, the failures of nuclear flight, the hubris of atomic earthmoving, the boom and bust uranium market, the birth and death of breeder reactors, and the 60-year wandering in the wilderness of nuclear waste policy. After graduating from Penn State and graduate study at the University of Maryland, Kennedy Maize worked for newspapers in Pennsylvania, New York, and Virginia and the Associated Press in Baltimore. He then spent five years in management at the National Institute of Health and the U.S. Nuclear Regulatory Commission before taking a job covering energy, environment, and business topics for Editorial Research Reports, a division of Congressional Quarterly, where his work appeared in over 1,000 daily newspapers in the U.S. during the mid-to-late 1970s. Maize became a staff writer and editor at The Energy Daily, a preeminent energy trade paper, on March 28, 1979, the day the Three Mile Island accident began outside Harrisburg, Pa. Over more than 10 years at The Energy Daily, he covered the nuclear and coal industries, including stories involving the Clinch River Breeder Reactor, the U.S. Synthetic Fuels Corp., the Powder River Basin coal leasing scandal, and the Chernobyl explosion. In 1993, he founded The Electricity Daily, where he was the editor for 14 years, writing about changes in the electricity business, the rise and fall of Enron, the stagnation of the nuclear power business, and the arrival of market forces in the utility field. Since 2006, he has been an editor at POWER magazine, and the founder of MANAGING POWER magazine, where he has written about the Fukushima catastrophe, the emergence of shale gas and decline of coal, and the often ill-advised push for renewable electricity technologies http://www.powermag.com/gas/Is-Shale-Gas-Shallow-or-the-Real-Deal\_5188.html]

In an interview with POWER, Berman argued that the boom in drilling shale gas wells has obscured a long-term decline in conventional gas supply. But a coming rapid decline in shale production, he said, will soon reveal the overall limits to the gas boom, and volatility and upward pressure could return to natural gas prices. “It’s not a problem for today or tomorrow,” Berman said, “but it is coming. Once we work through the current oversupply, if capital is not forthcoming,” prices will spike. The gas supply bubble will burst. Because of the current gas glut, with long prices in the range of $3 per million cubic feet (mcf), drilling shale gas wells has tanked, noted Berman. Chesapeake Energy, the most bullish of the shale gas players, is selling assets and shifting rigs to drilling for oil because the company just can’t make money on $3 gas. “I can see a time not too many months away when we could see gas supply in rather serious decline,” Berman said, noting that “there is plenty of gas, but it takes a long time to shift momentum back” to gas drilling. At a 2010 meeting in Washington, as low gas prices were resulting in a decline in new drilling, Berman commented, “Shale plays are marginally commercial at best.” Greatly complicating the supply equation, said Berman, is the nature of shale gas wells. “Shale wells decline 30 to 40% per year,” he said. “Conventional wells decline 20 to 25%. What most don’t grasp is how many wells it takes just to keep supply flat.” In the Barnett Shale in Texas, where Berman is most familiar with the geology, he calculates that the annual decline in the gas resource is 1.7 bcf/day. In order to add to the net Barnett production, Berman says, companies would have to drill 3,880 wells, at a cost of $12 billion. “We are setting ourselves up for a potential reduction in supply and price will go up,” said Berman. “I don’t know how much it will go up, and there is a check-and-balance with coal. There will be gas-coal switching if prices do go much higher than now.”

#### And, demand increases make a shock inevitable – corresponding supply key

Moors, 12/14/12 [Dr. Kent, Dr. Kent F. Moors is an internationally recognized expert in global risk management, oil/natural gas policy and finance, cross-border capital flows, emerging market economic and fiscal development, political, financial and market risk assessment. He is the executive managing partner of Risk Management Associates International LLP (RMAI), a full-service, global-management-consulting and executive training firm. Moors has been an advisor to the highest levels of the U.S., Russian, Kazakh, Bahamian, Iraqi and Kurdish governments, to the governors of several U.S. states, and to the premiers of two Canadian provinces. He’s served as a consultant to private companies, financial institutions and law firms in 25 countries and has appeared more than 1,400 times as a featured radio-and-television commentator in North America, Europe and Russia, appearing on ABC, BBC, Bloomberg TV, CBS, CNN, NBC, Russian RTV and regularly on Fox Business Network. A professor in the Graduate Center for Social and Public Policy at Duquesne University, where he also directs the Energy Policy Research Group, Moors has developed international educational programs and he runs training sessions for multiple U.S. government agencies. And until recent revisions in U.S. policy, Dr. Moors was slated to be the deputy director of the Iraq Reconstruction Management Office (IRMO) in Baghdad,

http://moneymorning.com/2012/12/14/2013-natural-gas-forecast-six-bullish-reasons-why-now-is-the-time-to-buy/\]

A rise on the supply side would generally reduce prices, especially if the number of operators continues to increase. More gas moving on the market from more suppliers results in a downward pressure on prices. The second dynamic, however, is moving in the other direction, enticing the increase in drilling and expansion of infrastructure. This factor considers the demand side, and there are at least six major trends colliding to increase the prospects for gas usage as we move through 2013. As a result, I expect natural gas prices to see a 25% increase from current levels... here's why. 2013 Natural Gas Forecast 1) Winter Chill Increases Natural Gas Demand The first factor driving price increases will come from a colder winter throughout the United States. Traditionally, gas prices have been quite sensitive to seasonal shifts. The overly mild winter in the East last winter was enough to depress gas prices across the board. In 2011, NYMEX futures contracts declined to less than $2 per 1,000 cubic feet (or million BTUs). The price has recovered to as much as $3.90 recently, although it is currently down to about $3.50. Nonetheless, the recovery (largely a result of companies pulling drilling rigs out of service and reducing the number of new wells) combined with a colder winter, will provide a base pushing the price to $4 as we start the new year. The other five elements are more directly affecting demand increases moving forward. These will have primary effects on the gas balance between anticipated needs and drilling volume. 2/3) Industrial and Petrochemical Usage on the Rise The second and third elements are increasing industrial and petrochemical uses for gas. Industrial use has been building for a while, but it is one of the last demand factors to emerge during an economic recovery. That is now beginning to kick in. However, petrochemical usage is resulting in an appreciating demand situation. Gas, natural gas liquids, and byproducts are replacing crude oil and oil products as feeder stock for an entire range of petrochemicals - from solvents and polymers, to plastics and fibers. The intense competition over where the next "crackers" will be located in the U.S. is clear testimony to the added demand coming from petrochemicals. These facilities will break down gas flows, making the feeder stock ingredients more accessible. This development is also putting some additional weight on the processing of "wet" gas, raw material containing value-added byproducts. 4) Natural Gas Fleets Expand Across the U.S. The fourth demand factor is the increasing use of natural gas as a vehicle fuel. We have been witnessing a rise in interest here for several years, but the move to using liquefied natural gas (LNG) and compressed natural gas (CNG) to replace gasoline and diesel has been gaining strength. Entire fleets of heavy-duty trucks have been retrofitted across Canada, while refueling terminals have been popping up near interstates in the U.S. to service company-designated vehicles. The cost savings in fuel is significant, usually representing more than two dollars per gallon. The downside is on the infrastructure side. It will take several years of heavy capital investment to provide the network of transport pipelines, storage and terminal facilities, filling stations, and related requirements. And we must consider the cost of retrofitting engines. At an average of $35,000 per vehicle, it will remain an obstruction for some. I expect to see an increase in natural gas-as-fuel usage continuing, but remaining on the truck side for 2013. Personal autos will stay a niche market in the near-term. Still, this will comprise an improving demand area for natural gas. 5) Electricity Consumption from Gas Set to Spike Fifth is the massive transfer underway from coal to gas as the preferred fuel for generating electricity. Coal will remain a fuel of choice in several sectors of the world and will still be cost effective in certain regions in the U.S. But the days of "King Coal" in the generation of electricity are drawing to a close. The figures here are massive. The American market is replacing more than 90 gigawatts (GW) of generating capacity by 2020, virtually all of this coal-fired. In addition, the phasing in of non-carbon regulations (cutting mercury, sulfurous, and nitrous oxide emissions) will add another 20 GW to the retirement agenda, once again coming almost exclusively from coal. Each 10 GW transferred to natural gas will require an additional 1.2 billion cubic feet of gas per day. If only 50% of the expected transition from coal to gas occurs, the added demand will eliminate three times the current total gas in storage nationwide.

#### And, supply expansion locks in a competitive advantage

Pirog and Ratner, 12 [November, Congressional Research Service, Natural Gas in the U.S. Economy: Opportunities for Growth Robert Pirog Specialist in Energy Economics Michael Ratner Specialist in Energy Policy, http://www.fas.org/sgp/crs/misc/R42814.pdf]

Expanded supply, coupled with low natural gas prices, has the potential to contribute to a transformation of important sectors of the U.S. economy. Increased output and employment, expanded investment, income growth, improved competitiveness, and a reduction in the foreign trade deficit are likely outcomes. These conditions in the natural gas markets are likely to benefit certain key industries directly, while many other industries could experience indirect benefits. direct beneficiaries are those industries that use natural gas as a raw material or as an important input in a production process. Industries whose output is directly related to the expansion of natural gas exploration, development and production are also direct beneficiaries. Examples of industries that use natural gas directly are petrochemicals and fertilizers. The steel industry is an example of an industry whose output is linked to the pace of natural gas resource development. Industries experiencing indirect benefits might include construction and capital goods producers that contribute to the supply chain for the investment projects undertaken by expanding natural gas consumers. In addition, more spending by workers in all of these industries could increase the growth of a wide variety of consumer goods and retail firms. The economic benefits of shale gas development and production will also open areas not recently accustomed to natural gas production, for example, the Marcellus field in parts of Pennsylvania, Ohio, West Virginia, Maryland, Virginia, and New York. In the international economy, those U.S. industries directly affected by expanded supply and low natural gas prices are likely to experience a competitive advantage over the producers of similar goods in other countries, resulting in increased exports from, and decreased imports to the United States. These effects would likely improve the U.S. trade deficit position. This advantage is likelyto be maintained over time if the U.S. price of natural gas remains below those observed in other world regional markets (see Figure 5).13 U.S. industry’s advantage could be reduced through a process of world natural gas price convergence, especially in the three leading regional markets. However, for this to occur, traditional long-run contract terms, specifically linking natural gas prices to oil prices, would need to be changed to a more market-oriented method.

#### The impact is economic collapse—natural gas maintains growth

Carey, 12/13/12 [Julie M, Julie M. Carey is an energy economist with Navigant Economics who provides consulting and testifying services Navigant’s unconventional oil and gas offerings include advisory services for strategic business decision analysis, construction risk management, economic and antitrust analyses, investment banking and restructuring advisory services, and expert services for disputes and investigations, “How Unconventional Oil And Gas Is Supercharging The U.S. Economy”, http://www.forbes.com/sites/energysource/2012/12/13/how-unconventional-oil-and-gas-is-transforming-the-u-s-economy/]

It’s an exciting time to be in the energy industry in America. The impact of unconventional oil and gas development on the U.S. economy is considerable, with potentially hundreds of billions of dollars in investments, millions of new jobs, and a renaissance of American ingenuity and innovation. In thinking about what is to come, looking back five years helps set the stage. January 2008: The energy sector was facing the great recession, high current and future expected natural gas prices, and job losses to China. There was a generallypoor outlook for the energy industryand the economy. Few could have predicted the changes that were to come. Unforeseen happenings include the North Dakota oil rush, liquefied natural gas facilities being used as export facilities (instead of as import facilities as originally planned), railroads hauling crude oil, and jobs coming back from China. And, this is just the beginning. The commencement of the crude oil and natural gas revolution can be boiled down to one simple equation: [Surprise Side Effect Of Shale Gas Boom: A Plunge In U.S. Greenhouse Gas Emissions](http://www.forbes.com/sites/energysource/2012/12/07/surprise-side-effect-of-shale-gas-boom-a-plunge-in-u-s-greenhouse-gas-emissions/) Forbes Staff Contributor Abundant resources + cost effective extraction = high production levels of unconventional oil and gas. The net effect is a reshaping of the U.S. energy industry and our economy. Additionally, the country’s increased reliance on natural gas (displacing coal) has already benefited the environment, and will continue to do so in the future. Carbon emissions hit a 20-year low (in the first quarter 2012 according to EIA) and some industry observers believe that the U.S. could meet the Kyoto agreement standards by 2020 (even though the U.S. did not sign it). The emergence of unconventional oil and gas will have tremendous impacts on both the energy industry and the economy. The outlook for unconventional gas is exceptionally bright—with expectations for relatively low future natural gas prices, enough supply to meet domestic needs, and surplus enough to export to other countries. While the unconventional oil story continues to unfold and evolve, an abundance of domestic crude oil is expected. And, thus, an opportunity to not only significantly reduce the country’s dependence on oil imports, but to also increase energy security. Currently, crude oil prices are out of balance as new supply regions are isolated, making it difficult to get crude oil to market. That is expected to change once the necessary infrastructure is built to handle the new-found supply. As a result of these infrastructure needs, and the tremendous opportunities associated with unconventional oil and gas, U.S. economic activity is rising. Rising levels of economic activity can be divided into three distinct but overlapping waves of capital investment. The first wave of capital investment targets new and expanding oil and gas production areas. Sustained investment in the upstream sector – including wellheads, drilling and production – will be required to keep pace with increases in demand for the foreseeable future. The second wave of investment will focus on infrastructure to address new supply locations, delivering the product to market, and capitalizing on the near term opportunities arising from lower energy costs. Billions of dollars of investments specifically targeting capital projects in this wave are being announced weekly. Substantial investment in crude oil, natural gas and natural gas liquids pipelines will be required in order to build, expand, and reverse pipelines to address the new supply source locations. Natural gas processing plants that separate natural gas liquids (NGL) from natural gas will be required to address the growing production levels and new supply regions. In addition, LNG facilities will begin to export natural gas, and there is a potential opportunity for natural gas-to-diesel plants. In addition to these traditional areas of investment, creative market solutions are also emerging, such as rail transportation of crude oil. While railroads may serve primarily as a near to mid-term solution in the wake of long-lead time pipeline solutions, they are nimble competitors with small capital requirements that can be quickly deployed to utilize the country’s far-reaching rail networks. With only a few years needed to recover capital costs on investment, the competitive landscape changes and rail transportation rates could be reduced after pipelines enter the market to keep railroads competitive and still profitable. These factors suggest that railroads could be in the crude oil transportation business for the long haul. During this second wave, there will be a manufacturing resurgence, in part because of lower expected energy costs. Other macroeconomic factors will also be at work—including relative improvement in U.S. labor rates as labor markets tighten in China and other countries. Petrochemical plants will become cost effective competitors in the worldwide market and will be a significant component of the manufacturing investment story. Manufacturing facilities will be built to manufacture pipes, drill bits, valves and other required infrastructure materials. In addition, other manufacturing plants will likely be built solely as a play on the expectation of relatively low energy costs into the future. Such suspects could include those whose energy costs are large portion of production costs: semiconductors, plastics, and LCD televisions. The trend includes linking production and energy resources in an efficient manner, and moving production closer to market demand in order to minimize transportation related costs. The last wave of investment – which won’t begin to heat up for a few years – focuses on the consumers segment. In this wave, additional natural gas-fired power plants will be built to replace retiring coal plants and meet future increases in demand. Of course, new gas fired power plants will initially be built in regions with less excess capacity (post coal plant retirement). Another impact of U.S. unconventional oil and gas development will be increased in electricity demand (occurring more dramatically in various localized pockets), directly resulting from investment in waves one and two. New production areas and locations for processing and manufacturing plants will observe higher load growth. For example, localized areas within the Bakken region expect energy demand to double in the next five years. As a result of very specific changes to the economic activity and corresponding energy consumption levels, a more granular analyses will be required than is previously provided by traditional load forecasting methods. This third wave will also see a significant number of new heavy-duty natural gas vehicles, including bus and truck fleets. Greater reliance on natural gas-fueled light duty vehicles is possible but will require more time due to greater infrastructure requirements and technological innovation. Other creative opportunities being explored include natural gas pumps (hooked up to the home) to fuel natural gas vehicles, and light duty vehicles relying on fuel cells (which manufacturers hope to begin building by 2015). While it’s not currently clear who the winners will be, it’s safe to say that positive market forces and ample opportunity will lead to innovative solutions. The near-term outlook for total capital investment (from primarily first and second wave projects) is immense. The table below provides a snapshot analysis of the short term outlook (through 2020) for domestic (lower 48 state) based capital investment. These estimates are conservative and based largely on publicly reported company business plans. For example, Table 1 includes only a portion of expected U.S. LNG projects going forward, as compared to the full list of DOE applications. The estimate also excludes the massive $65 billion proposed Alaska pipeline/export facility project and third wave investments targeting natural gas fired power plants and natural gas vehicles. Even with just a portion of total investment included, the conservative estimate of short term investment reaches more than $300 billion. **Estimate of U.S. Unconventional Oil and Gas Capital Expenditures and Job Creation**  **(Through 2020)** These investments have a huge economic impact on the U.S. economy—impacting jobs, economic growth and energy security. Some studies indicate that the U.S. has avoided retreating into an economic recession as a result of activity in the unconventional oil and gas sector. Production areas for unconventional oil and gas have observed very low unemployment and stronger GDP and tax revenues as compared to the rest of the U.S. As a result of the significant near term investments associated with unconventional oil and gas, it’s possible that up to 3.5 million jobs will be created from the infrastructure build out and related opportunities (including both direct and indirect jobs).

#### Robust domestic gas production is key to sustain manufacturing

Duesterberg, 12 [Tom is Executive Director of the Manufacturing and Society in the 21st Century program at the Aspen Institute. He recently retired as President and CEO of The Manufacturers Alliance/MAPI, an economic research and executive education organization based in Arlington, Virginia with more than 500 manufacturing firms as members. Previous positions include:  Director of the Washington Office of The Hudson Institute, Assistant Secretary for International Economic Policy at the U.S. Department of Commerce, chief of staff to two members of Congress, and associate instructor at Stanford University. His commentary and analysis on manufacturing, economic performance, globalization, and related policy issues can be found in major news outlets. He holds a B.A. degree from Princeton and M. A. and Ph.D. degrees from Indiana University, “Impact of the Energy Boom on US Manufacturing”,

<http://www.aspeninstitute.org/about/blog/impact-energy-boom-us-manufacturing>]

The manufacturing sector has been leading the US economic recovery since the end of the Great Recession in 2009. One of the key drivers in the manufacturing recovery is the renaissance in domestic production of natural gas and, to a lesser extent, oil. On November 28, the Institute’s program on [Manufacturing and Society in the 21st Century](http://www.aspeninstitute.org/policy-work/manufacturing) will host an [event](http://www.aspeninstitute.org/events/2012/11/28/impact-energy-renaissance-us-manufacturing) exploring the ramifications of recent developments in energy and manufacturing, and the sustainability of the production boom for the future. Growth in domestic energy production, driven by the deployment of new exploration and drilling technologies, has been aneconomic turning pointin the US for a number of reasons. Not the least of these is the possibility of reaching the US’ long-term goal of energy independence, a goal which arguably has already been reached, if North America is considered the proper unit for determining independence. The substitution of natural gas for coal in electricity production and process heat in manufacturing, as well as the growing use of natural gas in transportation, also contribute to lowering greenhouse gas emissions. The Department of Energy’s estimates of future carbon emissions show a 69 percent drop in expected emissions from 2002 to 2030 compared to projections from 1990. Finally, overall economic growth is strengthened considerably by the energy boom. Not only is the United States producing more energy, it will also be building more petrochemical refineries, will supply the equipment needed to build the exploration and refining infrastructure, and almost every energy user—from households to large manufacturers—will benefit from more secure supplies and lower costs. Manufacturing is at a pivotal point in this emerging energy economy. It uses about one-third of all energy produced in the United States, so lower prices and more secure supply give almost all firms in the sector a competitive advantage overfirms in other nations. Relative to the United States, the spot price of natural gas is nearly three times more expensive in Europe and four times more expensive in most of Asia. This advantage is especially important in the chemicals industry, which is the second largest subsector of US manufacturing. Natural gas and associated liquids represent over 80 percent of the feedstock for US refineries, whereas in Europe and Asia the ratios are roughly two-thirds oil and one-third natural gas. When the price differential between natural gas and oil is taken into account, the advantage to the American chemicals sector comes into much sharper relief. The US manufacturing sector benefits in many other ways: lower process heat costs, a globally competitive advantage in building the energy and refinery infrastructure driving the renaissance, and the stability of supply which will help attract long-term investment in subsectors like steel, glass, aluminum, and metal working. Finally, a larger share of GDP for a growing manufacturing sector helps to improve living standards, since productivity growth is so strong in this sector. Since 1998, manufacturing productivity has grown at an annual rate of 3.5 percent, over twice as much as the 1.4 percent in the services sector. In the last few decades, manufacturing -- which faces steadily growing foreign competition and must innovate to protect its market share -- has steadily improved the energy efficiency of production. Total carbon emissions in this sector have fallen by nearly one-fourth since 1998, even though total output has increased by about a third. As a result, carbon emissions per dollar of output in manufacturing have fallen by 36 percent since 1998, compared to only 20 percent in the overall economy. This is due in part to the substitution of natural gas, in part due to productivity increases, and in part due to higher use of renewable energy—manufacturing uses 90 percent more renewables than the transportation sector.

#### Strong manufacturing is the only way to make the economy resilient

Ettlinger, 11 [Michael, Vice President for Economic Policy at the Center for American Progress Prior to joining the Center, he spent six years at the Economic Policy Institute directing the Economic Analysis and Research Network. Previously, he was tax policy director for Citizens for Tax Justice and the Institute on Taxation and Economic Policy for 11 years. He has also served on the staff of the New York State Assembly. “The Importance and Promise of American Manufacturing Why It Matters if We Make It in America and Where We Stand Today”, http://www.americanprogress.org/wp-content/uploads/issues/2011/04/pdf/manufacturing.pdf]

Manufacturing is critically important to the American economy. For generations, the strength of our country rested on the power of our factory floors—both the machines and the men and women who worked them. We need manufacturing to continue to be a bedrock of strength for generations to come. Manufacturing is woven into the structure of our economy: Its importance goes far beyond what happens behind the factory gates. The strength or weakness of American manufacturing carries implications for the entire economy, our national security, and the well-being of all Americans. Manufacturing today accounts for 12 percent of the U.S. economy and about 11 percent of the private-sector workforce. But its significance is even greater than these numbers would suggest. The direct impact of manufacturing is only a part of the picture. First, jobs in the manufacturing sector are good middle-class jobs for millions of Americans. Those jobs serve an important role, offering economic opportunity to hard-working, middle-skill workers. This creates upward mobility and broadens and strengthens the middle class to the benefit of the entire economy. What’s more, U.S.-based manufacturing underpins a broad range of jobs that are quite different from the usual image of manufacturing. These are higher-skill service jobs that include the accountants, bankers, and lawyers that are associated with any industry, as well as a broad range of other jobs including basic research and technology development, product and process engineering and design, operations and maintenance, transportation, testing, and lab work. Many of these jobs are critical to American technology and innovation leadership. The problem today is this: Many multinational corporations may for a period keep these higher-skill jobs here at home while they move basic manufacturing elsewhere in response to other countries’ subsidies, the search for cheaper labor costs, and the desire for more direct access to overseas markets, but eventually many of these service jobs will follow. When the basic manufacturing leaves, the feedback loop from the manufacturing floor to the rest of a manufacturing operation—a critical element in the innovative process—is eventually broken. To maintain that feedback loop, companies need to move higher-skill jobs to where they do their manufacturing. And with those jobs goes American leadership in technology and innovation. This is why having a critical mass of both manufacturing and associated service jobs in the United States matters. The “industrial commons” that comes from the crossfertilization and engagement of a community of experts in industry, academia, and government is vital to our nation’s economic competitiveness. Manufacturing also is important for the nation’s economic stability. The experience of the Great Recession exemplifies this point. Although manufacturing plunged in 2008 and early 2009 along with the rest of the economy, it is on the rebound today while other key economic sectors, such as construction, still languish. Diversity in the economy is important—and manufacturing is a particularly important part of the mix. Although manufacturing is certainly affected by broader economic events, the sector’s internal diversity—supplying consumer goods as well as industrial goods, serving both domestic and external markets— gives it great potential resiliency. Finally, supplying our own needs through a strong domestic manufacturing sector protects us from international economic and political disruptions. This is most obviously important in the realm of national security, even narrowly defined as matters related to military strength, where the risk of a weak manufacturing capability is obvious. But overreliance on imports and substantial manufacturing trade deficits weaken us in many ways, making us vulnerable to everything from exchange rate fluctuations to trade embargoes to natural disasters.

#### Manufacturing loss cascades throughout the economy

Pisano and Shih, 12 [September, Producing Prosperity: Why America Needs a Manufacturing Renaissance [Kindle Edition], Harry E. Figgie Professor of Business Administration at the Harvard Business School. He has been on the Harvard faculty for 23 years, Professor of Management Practice. He joined the Technology and Operations Management Unit in January 2007, p. amazon kindle]

The rough and tumble of international competition means we should expect industries to come and go. Even if this is sometimes painful, it is, in fact, a healthy process by which resources flow to their most productive uses. When a commons erodes, however, it represents a deeper and more systematic problem. It means the foundation upon which future innovative sectors can be built is crumbling. When the semiconductor production business moved to Asia in the 1980s, it brought with it a whole host of capabilities—electronic-materials processing, deposition and coating, and sophisticated test and assembly capabilities—that formed an industrial commons needed to produce a whole host of advanced, high-valued-added electronic products such as flat-panel displays, solid-state lighting, and solar PV. In this book, we will examine the dynamics that underlie both the rise and decline of commons, and the consequence of those declines. Our argument is built around three core themes. Theme 1: When a Country Loses the Capability to Manufacture, It Loses the Ability to Innovate Innovation and manufacturing are often viewed as residing at the opposite ends of the economic spectrum—innovation being all about the brain (knowledge work) and manufacturing all about brawn (physical work). Innovation requires highly skilled, highly paid workers, and manufacturing requires low-skilled, low-paid workers; innovation is a high-valued-added specialty, and manufacturing is a low-value-added commodity; innovation is creative and clean, and manufacturing is dull and dirty. Such a view of manufacturing is a myth and is based on a profound misunderstanding of how the process of innovation works and the link between R&D and manufacturing. R&D is a critical part of the innovation process, but it is not the whole thing. Innovation is about moving the idea from concept to the customer’s hands. For some highly complex products (flat-panel displays, PV cells, and biotechnology drugs, to name a few) the transfer from R&D into production is a messy affair, requiring extremely tight coordination and the transfer of learning between those who design and those who manufacture. If you do not understand the production environment, you have a harder time designing the product. In these settings, there are strong reasons to co-locate R&D and production. It is a lot easier for an engineer to walk across the street to the plant or drive down the road than to fly halfway around the world to troubleshoot a problem. This helps to explain why the American company Applied Materials, a leading maker of equipment for manufacturing semiconductors and solar panels, moved its chief technical officer from the United States to China.14 Because most of its large customers are now in China, Taiwan, and South Korea, it makes sense for the company to do its research close to the factories that use its equipment. Applied Materials is now moving much of its manufacturing operations to Asia as well. In chapter 4, we will offer a framework for determining when it matters whether R&D and manufacturing are located near each and when it does not. Theme 2: The Industrial Commons Is a Platform for Growth The industrial commons perspective suggests that a decline of competitiveness of firms in one sector can have implications for the competitiveness of firms in another. Industries and the suppliers of capabilities to the industries need each other. Kill a critical industry, and the suppliers probably will not survive for long; other industries in the region that depend on those suppliers will then be jeopardized. When the auto industry declines, it causes an atrophy of capabilities (such as casting and precision machining) that are also used in industries such as heavy equipment, scientific instruments, and advanced materials. The unraveling of a commons is a vicious circle. As capabilities erode, it is harder for companies that require access to stay in business. They are forced to move their operations or their supplier base to the new commons. As they move, it is harder for existing suppliers to sustain themselves. Ultimately, they must either close shop or move their operations. Even worse, the loss of a commons may cut off future opportunities for the emergence of new innovative sectors if they require close access to the same capabilities. Four decades ago, when US consumer electronics companies decided to move production of these “mature” products to Asia, who would have guessed that this decision would influence where the most important component for tomorrow’s electric vehicles—the batteries—would be produced? But that is what happened.15 The offshoring of consumer electronics production (often contracted to then-little-known Japanese companies such as Sony and Matsushita) led to the migration of R&D in consumer electronics to Japan (and later to South Korea and Taiwan). As consumers demanded ever-smaller, lighter, and more powerful (and power hungry!) mobile computers and cell phones, electronics companies were pushed to innovate in batteries. In the process, Asia became the hub for innovation in the design and manufacturing of compact, high-capacity, rechargeable, lithium ion batteries, a technology that was invented in America. This explains why Asian suppliers have become the dominant source of the lithium ion battery cells used in electric vehicles.

#### Nuclear war

Harris and Burrows, 9 – \*counselor in the National Intelligence Council, the principal drafter of Global Trends 2025, \*\*member of the NIC’s Long Range Analysis Unit “Revisiting the Future: Geopolitical Effects of the Financial Crisis”, Washington Quarterly, http://www.twq.com/09april/docs/09apr\_burrows.pdf)

Increased Potential for Global Conflict

Of course, the report encompasses more than economics and indeed believes the future is likely to be the result of a number of intersecting and interlocking forces. With so many possible permutations of outcomes, each with ample opportunity for unintended consequences, there is a growing sense of insecurity. Even so, history may be more instructive than ever. While we continue to believe that the Great Depression is not likely to be repeated, the lessons to be drawn from that period include the harmful effects on fledgling democracies and multiethnic societies (think Central Europe in 1920s and 1930s) and on the sustainability of multilateral institutions (think League of Nations in the same period). There is no reason to think that this would not be true in the twenty-first as much as in the twentieth century. For that reason, the ways in which the potential for greater conflict could grow would seem to be even more apt in a constantly volatile economic environment as they would be if change would be steadier.

In surveying those risks, the report stressed the likelihood that terrorism and nonproliferation will remain priorities even as resource issues move up on the international agenda. Terrorism’s appeal will decline if economic growth continues in the Middle East and youth unemployment is reduced. For those terrorist groups that remain active in 2025, however, the diffusion of technologies and scientific knowledge will place some of the world’s most dangerous capabilities within their reach. Terrorist groups in 2025 will likely be a combination of descendants of long established groups inheriting organizational structures, command and control processes, and training procedures necessary to conduct sophisticated attacks and newly emergent collections of the angry and disenfranchised that become self-radicalized, particularly in the absence of economic outlets that would become narrower in an economic downturn.

The most dangerous casualty of any economically-induced drawdown of U.S. military presence would almost certainly be the Middle East. Although Iran’s acquisition of nuclear weapons is not inevitable, worries about a nuclear-armed Iran could lead states in the region to develop new security arrangements with external powers, acquire additional weapons, and consider pursuing their own nuclear ambitions. It is not clear that the type of stable deterrent relationship that existed between the great powers for most of the Cold War would emerge naturally in the Middle East with a nuclear Iran. Episodes of low intensity conflict and terrorism taking place under a nuclear umbrella could lead to an unintended escalation and broader conflict if clear red lines between those states involved are not well established. The close proximity of potential nuclear rivals combined with underdeveloped surveillance capabilities and mobile dual-capable Iranian missile systems also will produce inherent difficulties in achieving reliable indications and warning of an impending nuclear attack. The lack of strategic depth in neighboring states like Israel, short warning and missile flight times, and uncertainty of Iranian intentions may place more focus on preemption rather than defense, potentially leading to escalating crises.

Types of conflict that the world continues to experience, such as over resources, could reemerge, particularly if protectionism grows and there is a resort to neo-mercantilist practices. Perceptions of renewed energy scarcity will drive countries to take actions to assure their future access to energy supplies. In the worst case, this could result in interstate conflicts if government leaders deem assured access to energy resources, for example, to be essential for maintaining domestic stability and the survival of their regime. Even actions short of war, however, will have important geopolitical implications. Maritime security concerns are providing a rationale for naval buildups and modernization efforts, such as China’s and India’s development of blue water naval capabilities. If the fiscal stimulus focus for these countries indeed turns inward, one of the most obvious funding targets may be military. Buildup of regional naval capabilities could lead to increased tensions, rivalries, and counterbalancing moves, but it also will create opportunities for multinational cooperation in protecting critical sea lanes. With water also becoming scarcer in Asia and the Middle East, cooperation to manage changing water resources is likely to be increasingly difficult both within and between states in a more dog-eat-dog world.

#### Growth solves war—strong studies

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

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

### New

#### Advantage two is the science advantage

#### Science leadership’s key to the sustainability and legitimacy of hegemony – independently solves extinction

Coletta 9 [Damon Coletta, Professor of Political Science at the United States Air Force Academy, September 2009, “Science, Technology, and the Quest for International Influence,” <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA536133&Location=U2&doc=GetTRDoc.pdf>]

Less appreciated is how scientific progress facilitates diplomatic strategy in the long run, how it contributes to Joseph Nye‘s soft power, which translates to staying power in the international arena. One possible escape from the geopolitical forces depicted in Thucydides‘ history for all time is for the current hegemon to maintain its lead in science, conceived as a national program and as an enterprise belonging to all mankind. Beyond the new technologies for projecting military or economic power, the scientific ethos conditions the hegemon‘s approach to social-political problems. It effects how the leader organizes itself and other states to address well-springs of discontent—material inequity, religious or ethnic oppression, and environmental degradation. The scientific mantle attracts others‘ admiration, which softens or at least complicates other societies‘ resentment of power disparity. Finally, for certain global problems—nuclear proliferation, climate change, and financial crisis—the scientific lead ensures robust representation in transnational epistemic communities that can shepherd intergovernmental negotiations onto a conservative, or secular, path in terms of preserving international order. In today‘s order, U.S. hegemony is yet in doubt even though military and economic indicators confirm its status as the world‘s lone superpower. America possesses the material wherewithal to maintain its lead in the sciences, but it also desires to bear the standard for freedom and democracy. Unfortunately, patronage of basic science does not automatically flourish with liberal democracy. The free market and the mass public impose demands on science that tend to move research out of the basic and into applied realms. Absent the lead in basic discovery, no country can hope to pioneer humanity‘s quest to know Nature. There is a real danger U.S. state and society could permanently confuse sponsorship of technology with patronage of science, thereby delivering a self-inflicted blow to U.S. leadership among nations.

#### Legitimacy of U.S. hegemony’s key to global stability---prevents great power war

Kevin Fujimoto 12, Lt. Colonel, U.S. Army, January 11, 2012, “Preserving U.S. National Security Interests Through a Liberal World Construct,” online: <http://www.strategicstudiesinstitute.army.mil/index.cfm/articles/Preserving-US-National-Security-Interests-Liberal-World-Construct/2012/1/11>

The emergence of peer competitors, not terrorism, presents the greatest long-term threat to our national security. Over the past decade, while the United States concentrated its geopolitical focus on fighting two land wars in Iraq and Afghanistan, China has quietly begun implementing a strategy to emerge as the dominant imperial power within Southeast Asia and the Indian Ocean. Within the next 2 decades, China will likely replace the United States as the Asia-Pacific regional hegemonic power, if not replace us as the global superpower.1 Although China presents its rise as peaceful and non-hegemonic, its construction of naval bases in neighboring countries and military expansion in the region contradict that argument. With a credible threat to its leading position in a unipolar global order, the United States should adopt a grand strategy of “investment,” building legitimacy and capacity in the very institutions that will protect our interests in a liberal global construct of the future when we are no longer the dominant imperial power. Similar to the Clinton era's grand strategy of “enlargement,”2 investment supports a world order predicated upon a system of basic rules and principles, however, it differs in that the United States should concentrate on the institutions (i.e., United Nations, World Trade Organization, ASEAN, alliances, etc.) that support a world order, as opposed to expanding democracy as a system of governance for other sovereign nations. Despite its claims of a benevolent expansion, China is already executing a strategy of expansion similar to that of Imperial Japan's Manchukuo policy during the 1930s.3 This three-part strategy involves: “(i) (providing) significant investments in economic infrastructure for extracting natural resources; (ii) (conducting) military interventions (to) protect economic interests; and, (iii) . . . (annexing) via installation of puppet governments.”4 China has already solidified its control over neighboring North Korea and Burma, and has similarly begun more ambitious engagements in Africa and Central Asia where it seeks to expand its frontier.5 Noted political scientist Samuel P. Huntington provides further analysis of the motives behind China's imperial aspirations. He contends that “China (has) historically conceived itself as encompassing a “‘Sinic Zone'. . . (with) two goals: to become the champion of Chinese culture . . . and to resume its historical position, which it lost in the nineteenth century, as the hegemonic power in East Asia.”6 Furthermore, China holds one quarter of the world's population, and rapid economic growth will increase its demand for natural resources from outside its borders as its people seek a standard of living comparable to that of Western civilization. The rise of peer competitors has historically resulted in regional instability and one should compare “the emergence of China to the rise of. . . Germany as the dominant power in Europe in the late nineteenth century.”7 Furthermore, the rise of another peer competitor on the level of the Soviet Union of the Cold War ultimately threatens U.S. global influence, challenging its concepts of human rights, liberalism, and democracy; as well as its ability to co-opt other nations to accept them.8 This decline in influence, while initially limited to the Asia-Pacific region, threatens to result in significant conflict if it ultimately leads to a paradigm shift in the ideas and principles that govern the existing world order. A grand strategy of investment to address the threat of China requires investing in institutions, addressing ungoverned states, and building legitimacy through multilateralism. The United States must build capacity in the existing institutions and alliances accepted globally as legitimate representative bodies of the world's governments. For true legitimacy, the United States must support these institutions, not only when convenient, in order to avoid the appearance of unilateralism, which would ultimately undermine the very organizations upon whom it will rely when it is no longer the global hegemon. The United States must also address ungoverned states, not only as breeding grounds for terrorism, but as conflicts that threaten to spread into regional instability, thereby drawing in superpowers with competing interests. Huntington proposes that the greatest source of conflict will come from what he defines as one “core” nation's involvement in a conflict between another core nation and a minor state within its immediate sphere of influence.9 For example, regional instability in South Asia10 threatens to involve combatants from the United States, India, China, and the surrounding nations. Appropriately, the United States, as a global power, must apply all elements of its national power now to address the problem of weak and failing states, which threaten to serve as the principal catalysts of future global conflicts.11 Admittedly, the application of American power in the internal affairs of a sovereign nation raises issues. Experts have posed the question of whether the United States should act as the world's enforcer of stability, imposing its concepts of human rights on other states. In response to this concern, The International Commission on Intervention and State Sovereignty authored a study titled, The Responsibility to Protect,12 calling for revisions to the understanding of sovereignty within the United Nations (UN) charter. This commission places the responsibility to protect peoples of sovereign nations on both the state itself and, more importantly, on the international community.13 If approved, this revision will establish a precedent whereby the United States has not only the authority and responsibility to act within the internal affairs of a repressive government, but does so with global legitimacy if done under the auspices of a UN mandate. Any effort to legitimize and support a liberal world construct requires the United States to adopt a multilateral doctrine which avoids the precepts of the previous administration: “preemptive war, democratization, and U.S. primacy of unilateralism,”14 which have resulted in the alienation of former allies worldwide. Predominantly Muslim nations, whose citizens had previously looked to the United States as an example of representative governance, viewed the Iraq invasion as the seminal dividing action between the Western and the Islamic world. Appropriately, any future American interventions into the internal affairs of another sovereign nation must first seek to establish consensus by gaining the approval of a body representing global opinion, and must reject military unilateralism as a threat to that governing body's legitimacy. Despite the long-standing U.S. tradition of a liberal foreign policy since the start of the Cold War, the famous liberal leviathan, John Ikenberry, argues that “the post-9/11 doctrine of national security strategy . . . has been based on . . . American global dominance, the preventative use of force, coalitions of the willing, and the struggle between liberty and evil.”15 American foreign policy has misguidedly focused on spreading democracy, as opposed to building a liberal international order based on universally accepted principles that actually set the conditions for individual nation states to select their own system of governance. Anne-Marie Slaughter, the former Dean of the Woodrow Wilson School of Public and International Affairs, argues that true Wilsonian idealists “support liberal democracy, but reject the possibility of democratizing peoples . . .”16 and reject military primacy in favor of supporting a rules-based system of order. Investment in a liberal world order would also set the conditions for the United States to garner support from noncommitted regional powers (i.e., Russia, India, Japan, etc.), or “swing civilizations,” in countering China's increasing hegemonic influence.17 These states reside within close proximity to the Indian Ocean, which will likely emerge as the geopolitical focus of the American foreign policy during the 21st century, and appropriately have the ability to offset China's imperial dominance in the region.18 Critics of a liberal world construct argue that idealism is not necessary, based on the assumption that nations that trade together will not go to war with each other.19 In response, foreign affairs columnist Thomas L. Friedman rebukes their arguments, acknowledging the predicate of commercial interdependence as a factor only in the decision to go to war, and argues that while globalization is creating a new international order, differences between civilizations still create friction that may overcome all other factors and lead to conflict.20 Detractors also warn that as China grows in power, it will no longer observe “the basic rules and principles of a liberal international order,” which largely result from Western concepts of foreign relations. Ikenberry addresses this risk, citing that China's leaders already recognize that they will gain more authority within the existing liberal order, as opposed to contesting it. China's leaders “want the protection and rights that come from the international order's . . . defense of sovereignty,”21 from which they have benefitted during their recent history of economic growth and international expansion. Even if China executes a peaceful rise and the United States overestimates a Sinic threat to its national security interest, the emergence of a new imperial power will challenge American leadership in the Indian Ocean and Asia-Pacific region. That being said, it is more likely that China, as evidenced by its military and economic expansion, will displace the United States as the regional hegemonic power. Recognizing this threat now, the United States must prepare for the eventual transition and immediately begin building the legitimacy and support of a system of rules that will protect its interests later when we are no longer the world's only superpower.

#### Helium shortages destroy U.S. science leadership

Ong 12 [Phuan Ong , the Eugene Higgins Professor of Physics Director, Princeton Center for Complex Materials Department of Physics Princeton University, Helium: Supply Shortages Impacting our Economy, National Defense and Manufacturing, Congressional Documents & Publications, lexis]

The 2 main reasons why liquid helium is vital for research are: 1) Helium is the only fluid available for cooling samples to temperatures close to absolute zero. All objects follow the universal laws of quantum mechanics. However, at room temperature, large thermal agitations of molecules and atoms largely obscure or destroy the manifestations of quantum physics. Hence quantum behavior seems bizarre and unfamiliar to all of us. Cooling a sample suppresses the thermal agitations, allowing the quantum phenomena to become apparent. Put more directly, liquid helium is the "royal road" to discovery. 2) Helium is used to cool the superconducting wires in superconducting magnets. At present, superconducting magnets using niobium-tin (and tentatively high-Tc cuprates) provide the only known means for producing intense magnetic fields over human-sized volumes. They have to be cooled to 4 Kelvin above absolute zero to remain superconducting. With increasing demands worldwide (in research, MRI machines and in future transport), the demand for liquid helium is expected to rise sharply. To mix metaphors, we may say that liquid helium is the vital "oxygen" that nourishes the large, dynamic U.S. research community. Disrupting this vital flow will deliver a crippling body blow to a large segment of the community, and jeopardize the leadership role of the U.S. in the coming decades. Increasingly, the pre-eminence of the U.S. in this field of physics has come under stiff challenges from groups in Germany, Japan, Netherlands, China and S. Korea. These countries have steeply increased their investments in these areas and "grown" a new generation of physicists, mostly trained in the U.S. The investment stems from the universal consensus that, in contrast to many other fundamental scientific areas, the results here underpin important future technologies. In an increasingly flat world, it is prudent for the U.S. to safeguard the availability of this valuable national resource. From the RandD viewpoint, strong fluctuations in the price of helium or in the supplywould be very harmful to the U.S. national interest.

#### Reliable helium supply key to semiconductors

SIA 12– Semiconductor Industry Association, 7/10/12, “Helium: Supply Shortages Impacting our Economy, National Defense and Manufacturing,” http://www.sia-online.org/clientuploads/directory/DocumentSIA/Helium%20testimony%20120801%20(2).pdf

Helium's unique physical and chemical properties have made it critical to the manufacture of semiconductors. The industry uses helium because it is very inert, has a very low boiling point (at 4 degrees K, near absolute zero), and due to its high thermal conductivity. Some of principle uses of helium in the semiconductor industry are as a carrier gas for deposition processes, as a dilutant gas in plasma etch processes, and in some specialized wafer cooling applications. It is also critical in leak detection. Helium is used to achieve ultra-clean manufacturing and assembly environments that are essential for advanced semiconductor manufacturing. 1 According to a report of the National Academy of Sciences, semiconductor and optical fiber manufacturing account for 13 percent of uses of helium; 2 suppliers to the industry have indicated to us that semiconductor uses account for approximately 6 percent of helium usage. In some applications, alternatives such as argon or nitrogen may be used, but this typically results in a decrease in throughput. For these reasons, a reliable supply of helium at stable prices remains critical to the manufacturing process and continued health of the U.S. semiconductor manufacturing industry.

#### Stops EMP Attacks

**Spring 94** (Baker Spring, Researcher – Heritage Foundation, Backgrounder, http://www.heritage.org/Research/NationalSecurity/BG987.cfm)

In addition to ensuring the reliability of the existing stockpile, testing has other important and practical uses. Nuclear tests will be required to field new systems as previous generations of weapons become old and obsolete. No testing means no modernization, which means, ultimately, no nuclear stockpile. Moreover, testing is used to "harden" conventional weapons and non-nuclear defenses by exposing them to the effects of nuclear explosions. If these systems are not hardened, a regional adversary will be tempted to explode a nuclear weapon in the air in order to knock out these non-nuclear systems. (The U.S. ability to produce semiconductors that are hardened against the radiation emitted by nuclear weapons is weakening. For a discussion of this alarming problem, see: Lt. Col. Bill Swiderek, "Evaluating the Viability of Rad-Hard Fab Lines," Military & Aerospace Electronics, September 20, 1993, pp. 4, 14-15.)

#### Extinction

**Pry 10** (Peter Vincent, director of the U.S. Nuclear Strategy Forum, “What America Needs to Know About EMPs” http://wethearmed.com/index.php?topic=8450.0)

EMP is not just a threat to computers and electronic gadgets, but to all the critical infrastructures that depend on electronics and electricity -- communications, transportation, banking and finance, food and water -- and that sustain modern civilization and the lives of the American people. In 2008, the congressionally mandated Commission to Assess the Threat to the United States from Electromagnetic Pulse Attack delivered its final report to Congress, the Defense Department, and the Department of Homeland Security. The commission concluded that terrorist groups, rogue states, China, and Russia are theoretically capable of launching a catastrophic EMP attack against the United States and either had contingency plans to do so or were actively pursuing the ability. Iran, North Korea, China, and Russia have scientific and military research programs dedicated to or supportive of EMP capability, and their military doctrinal writings explicitly describe EMP attacks against the United States. Based on eight years of research and analysis, 50 years of data from nuclear tests and EMP simulators, and never-before-attempted EMP tests, the commission found that any nuclear weapon, even a low-yield one, could potentially pose a catastrophic EMP threat to the United States, mainly because of the great fragility of the electric grid. One scenario of particular concern is a nuclear-armed Iran transferring a short- or medium-range nuclear missile to terrorist groups that could perform a ship-launched "anonymous" EMP attack against the United States. Iranian military strategists have written about EMP attacks against the United States, and Iran has successfully practiced launching a ballistic missile off a ship and flight-tested its Shahab-3 medium-range missile to detonate at high altitude, as if practicing an EMP attack. The commission also noted credible Russian claims that they had developed what the Russians call "super-EMP" weapons -- low-yield nuclear weapons specially designed to generate extraordinarily powerful EMP fields -- and that the Russian Duma had raised the prospect of a disabling EMP attack against the United States during NATO's bombing of Serbia in May 1999. The EMP Commission also, in the first such preview by any official body, warned that a "great" geomagnetic storm could be as catastrophic as a nuclear EMP attack -- and that this naturally occurring EMP event is inevitable. Normally, geomagnetic storms occur at high northern latitudes, not over the United States, and usually are not sufficiently powerful to cause catastrophic damage. But every hundred years or so, a "great" geomagnetic storm occurs that could cause catastrophic damage to electronics -- and the infrastructures that rely upon them -- over much of the Northern Hemisphere. The world has not experienced a great geomagnetic storm since the advent of the electronic age, not since the Carrington event of 1859 -- but many scientists think we are overdue. A great geomagnetic storm could generate an EMP covering the United States equivalent to the high-altitude detonation of a very powerful megaton-class nuclear weapon. Weinberger accuses the EMP Commission of deliberately "exaggerating the capabilities of a potential EMP attack." This is a serious allegation, as deliberately misrepresenting the facts about the EMP threat would constitute an ethical and legal violation. As evidence, Weinberger offers the opinion of Philip Coyle of the Center for Defense Information. Whatever Coyle's opinion may be, he is no authority on the commission's work and has participated in none of it. In any case, even he only accuses the EMP Commission of using "inflammatory language" but not of misrepresenting facts. As a member of the EMP Commission's staff, I can assure the public that the EMP commissioners adhered to the highest standards of professionalism and scientific objectivity. If the findings of the EMP Commission sound alarming, it is because they are. The EMP commissioners did their duty and followed the data. The EMP Commission's threat assessment and recommendations represent the best work so far produced by the United States on EMP and is the best-informed basis for national security policy. The EMP Commission's conclusions were also backed up by the findings of another congressional commission, this one chaired by former Defense Secretary William Perry. Their 2009 report independently concluded that terrorists, rogue states, China, and Russia could pose an EMP threat to the United States and advocated immediate implementation of the EMP Commission's recommendations.

#### Helium key to particle acceleration

CN 12 – Citation News, “Scientists' High-Pitched Response to Helium Shortage”, 3-22, http://www.cyberregs.com/webapps/Blog/post/Scientists-High-Pitched-Response-to-Helium-Shortage.aspx

Helium - the second lightest element in the universe with an atomic weight of 4.002602 - is an inert gas that can be cooled to temperatures of -270 Celsius without becoming a solid, making it indispensible in the operation of, among many things, superconducting magnets used in MRI scanners, telescopes and particle accelerators like the Large Hadron Collider. Helium also holds an important place in the defense industry. It also has some far less profound applications, which consume great quantities of the gas annually - applications such as party balloons and squeak-voice huffing. These latter applications have drawn the ire of researchers. This month, the Guardian reported that the UK's Rutherford Appleton Laboratory wasted three days and £90,000 (US$ 143,091), when, during an important experiment exploring the structure of matter, they could not obtain a supply of helium. Needless to say, the scientists were in a less-than-celebratory mood. "We put the stuff into party balloons and let them float off into the upper atmosphere, or we use it to make our voices go squeaky for a laugh. It is very, very stupid. It makes me really angry,” said Oleg Kiricheck, the research team leader. Cornell University Professor Robert Richardson is also concerned. He believes that, with our current reserves of helium, the price of the element severely discounts its real value. By his estimation, the price of a single party balloon should cost as much as $100. Richardson suggests increasing the price of helium by 20-50% to eliminate excessive waste. Although helium ranks next to hydrogen as the most abundant element in the universe, here on earth it is a finite commodity. The helium that is here is all we have! Helium is collected during natural gas and oil drilling. If the gas is not captured, it dissipates into earth's upper atmosphere and is lost forever. The same happens when a party balloon is released into the air, or when it self-deflates, because helium atoms are so small that they can easily move through the balloon's latex shell. Party balloons do not represent the only wasteful expenditures of helium. Macy's Thanksgiving Day parade typically uses 400 Mcf a year, although there have been recent attempts to recycle some of the helium used in the floats. NASA uses up to 75 MMcf annually to pressurize rocket tanks. The agency has made no attempt to recycle this huge amount of gas. Weather balloons also consume about 140 MMcf of helium per year. At the present rate of supply depletion, the United States will become an importer of helium from the Middle East and Russia within 10 years, and the world will run out of helium within 30 years. This would have major implications for space travel and exploration, scientific and nuclear research, medical advances and early detection of diseases. Possible solutions for this problem should address supply, not pricing. A drastic increase in the price of helium as a preservative measure would cause a huge spike in billing for medical procedures, such as MRIs, scientific research, and defense expenditures, as well as party balloons.

#### Accelerators stop nuclear testing

* Monitoring arms control
* Maintaining stockpile stewardship

Henning 10 (Walter, Senior Physicist – Argonne National Laboratory and Member – American Association for the Advancement of Science, “Accelerators for America’s Future”, June, <http://www.acceleratorsamerica.org/files/Rep> ort.pdf)

From the earliest days of their development, accelerators have made critical contributions to the security and defense of the United States. During World War II, accelerators contributed directly to the separation of isotopes using industrial- scale accelerator mass spectrometry and provided facilities for defense-related nuclear physics research. The plutonium war effort relied heavily on Ernest Lawrence’s 60-inch cyclotron at Berkeley. In turn, war-related research, most notably radar, found peacetime applications in technologies for accelerators. Post World War II government support of accelerator research led to the global preeminence of U.S. acceleratorresearch facilities and technological expertise. Universities and national laboratories, including defense laboratories, developed increasingly powerful and sophisticated accelerators for basic and applied sciences. As early as 1949, the potential uses of accelerators for national security included the predetonation of critical nuclear devices, the deployment of antipersonnel weapons, the detection of contraband fissile materials, the identification of aircraft and the enrichment of nuclear materials. Lawrence and the Berkeley group developed prototype accelerators including a high-intensity linear accelerator, the Materials Testing Accelerator. The current U.S. accelerator-facility infrastructure at the national laboratories is the direct legacy of the Atomic Energy Commission’s postwar program. The Department of Energy defense laboratories, Livermore, Los Alamos and Sandia, have also pursued security-related accelerator technology. Induction linac technology, originally developed for acceleratorinduced fusion, finds application in radiography, of direct importance to the nuclear weapons program. The Los Alamos Neutron Science Center, or LANSCE, provides important nuclear data. Both Livermore and Sandia pursued electronbeam- based technology for directed-energy weapons. The 458 Accelerators for America’s Future Particle beams can scan shipping containers for contraband materials. Defense Advanced Research Projects Agency, or DARPA, supported the exploration of the potential of accelerators for direct military applications at the Advanced Test Accelerator and the RADLAC I, the Radial Line Accelerator. The Los Alamos-based Beam Experiments Aboard a Rocket, or BEAR, deployed the then-new radio-frequency-quadrupole, or RFQ, based LINAC. This experiment succeeded in producing a neutral particle beam in flight and generated data on these technologies for the Department of Defense Strategic Defense Initiative Organization, SDIO. Argonne National Laboratory pursued neutral-particle-beam research with the Continuous Wave Deuterium Demonstrator. The SDIO activities were noteworthy for joint laboratory and industry cooperation. Early applications of accelerators to inspect nuclear fuels used commercial low-energy (tens of MeV) electron linacs to induce photo-fission reactions. These inspection technologies expanded to waste-drum assays in the 1980s and eventually to cargo inspections. The invention of the free electron laser in the 1970s led to ever-higher-power electromagnetic radiation using high-energy electrons, of direct interest to security and defense applications, including the Navy’s proposed application of free-electron laser technology to shipboard defense. Nearly all accelerator applications for security and defense have sprung from research and development in fundamental science. The promise of future accelerator technologies continues to rest on advances in basic science and its need for more and more powerful tools. These accelerator advances stock the shelves with technologies and data. The scientific and technical workforce engaged in these developments contributes to their application to security programs. Continued support for basic science and for accelerator R&D as a scientific discipline has great significance for national security and defense. Accelerator technologies find applications for a diverse and growing set of security and defense needs, including stockpile stewardship, war-fighter and asset protection, materials characterization, interrogation of cargo and inspection capabilities of all types, and the support of present and future nonproliferation regimes. Accelerator laboratories and technologies have the potential to make significant contributions to the needs of national security and defense in ten key areas: physical data; high-energy-density conditions; directed-energy capability; cargo inspection and interrogation; replacement of radioactive sources and materials; isotope production; nuclear forensics; compact, fieldable accelerator systems; simulation tools; and workforce training. Physical data National security and defense programs have a critical need for the highestquality data on materials characterization, material alteration, nuclear fission, and the interaction of radiation with materials. These requirements rely on all the types of accelerator facilities operated by the DOE Office of Science: neutron sources, synchrotron radiation light sources, and low- and high-energy particle beams. The data are necessary to reliably simulate systems for detecting special nuclear materials and byproducts of nuclear fission. Much of the current data is incomplete and much of it dates from the 1950s and 1960s. Missing data include time, angular, and neutron-gamma correlations; high-resolution spectroscopy; and nuclear resonance fluorescence. Existing accelerator facilities could perform this work, but often encounter impediments to conducting measurements with special nuclear materials. The facilities may lack licenses to hold such materials or may be unprepared for the associated health and safety requirements. Obtaining these data will require particle- and nuclear-physics-style detectors with near full solid-angle coverage, particle identification, and fast timing. A significant challenge is the development of detectors that operate in ambient conditions. For example, many current detectors must operate at extremely low (tens of degrees Kelvin) temperatures. Developing materials that can operate in ambient conditions while accurately recording events is a great challenge for security and defense field operations. A further challenge is to develop dedicated accelerator-based beamlines, for example a beamline at a synchrotron light source, for security and defense needs. Currently, the nation has no dedicated beamline for studies of exotic materials including radiological, biological, chemical and explosive ones. Accelerator-based science has much to contribute to better production of such materials, characterization of their reactions, decontamination and safer handling. High energy density Facilities that provide conditions of high energy density, such as those found in plasmas, provide an important, controlled environment for understanding phenomena important to aspects of the security mission. Many such pulsedpower based facilities have operated outside the DOE Office of Science mission. However, accelerator research for inertial confinement fusion concepts could advance such high-energy-density environments and serve high-energy-density research for security and defense. Directed energy Accelerator-based directed-energy capabilities have been pursued from the earliest times of accelerator development. Research into beam-power levels high enough for directed energy has supported the development of several technologies, most notably radio-frequency-quadrupole structures, or RFQs, now ubiquitous in the accelerator world. The current need is for development of a fieldable device for testing with defense and security partners. Relativistic electron beams can generate high-power electromagnetic radiation at various frequencies for directed-energy-specific missions. Examples include free electron lasers, highly directional gamma-ray beams through Compton scattering, and millimeter-wave to terahertz radiation. Free electron lasers can in principle achieve megawatt average power levels and optical beam quality and wavelengths required for security and defense purposes. In the mid-1990s, the highest average-power FEL had achieved only 11 watts. The Navy, as a user of the FEL at DOE’s Thomas Jefferson National Accelerator Facility achieved 2.2 kW, and a subsequent upgrade in 2006 demonstrated 14kW at 1.6microns, a wavelength of particular interest to the Navy. Free electron laser-based directed energy can expand to a wide range of missions. With increased efficiency and decreased weight, for example, FELs might serve as airborne platforms. With appropriate R&D, such goals appear achievable. Most such improvements would feed back to the basic science programs, potentially leading to lower-cost FEL systems and associated energyrecovery- linac light sources. A megawatt-class FEL will require several critical accelerator R&D developments. Credible designs exist for two of these: a high-quality ampereclass electron gun and continuous wave injector that can operate for weeks, and ampere-class SRF cavities with higher-mode suppression using high-temperature superconductors. However, demonstration of these designs requires funding. At the conceptual level with simulations, researchers are currently exploring a third critical element, megawatt-level RF couplers. Complete system modeling is underway; but bringing these efforts to the point of comparison to the actual performance of, for example, future 100-kW prototypes, will require major efforts. Cargo inspection and interrogation Security priorities of the last decade have turned to deterring the threat from subnational organizations. Some of these deterrents rely on identifying small quantities of special nuclear material in shipping containers through a signature reaction induced by radiation. Accelerators are a natural choice for producing well-characterized beams of radiation and are central to a number of current proposals to develop active interrogation techniques. “ Standing off” at a distance from the object under inspection by using electromagnetic radiation, including that from accelerators, is of significant interest in security and defense. The recent developments in terahertz radiation at FELs show potential for active interrogation with desirable standoff distances for cargo, improvised explosive devices and biological investigations. Other interrogation techniques use neutron and proton beams ranging from tens of keV to tens of GeV with radiographic sensitivity to a variety of materials. Standoff with GeV protons to induce fission will require milliampere beam currents, high gradient and high temperature superconducting technologies, as well as compact devices that laser-driven accelerator technology may make possible. Researchers have proposed more exotic radiography using the low interaction rates of muons to achieve significant standoff. Such proposals would build on developments for muon colliders and neutrino factories, the subject of R&D for possible future basic-science facilities. Replacement of radioactive sources and materials In the 1970s, accelerator-based gamma-ray radiation therapy replaced radioisotope- based devices in the United States and Western Europe. However, in much of the rest of the world, 60Co-based teletherapy units are still very common, with over 10,000 in service, according to the International Atomic Energy Agency. With an average radioactivity of 2000 curies, these devices represent a potential source of material for a radiological attack. Progress towards more compact, rugged, and reliable accelerators can replace 60Co-based sources in medicine, as well as in industrial applications. Advances in high-gradient accelerator structures, microwave generation, and power electronics could sharply reduce the cost of accelerator-based therapy. The accelerator must be able to function with high reliability in adverse environmental conditions, with fluctuating electrical supply. Because it is unlikely that private industry would undertake such a design without a defined market, deployment of this accelerator would need to be a coordinated effort among various U.S. government agencies, industry and the international community. Isotope production Accelerator production of both stable and radioactive isotopes has potential impact on security and defense. Demand for the stable helium isotope 3He has significantly increased in recent years, due to its use in neutron detectors for portal monitors and other systems for detecting special nuclear materials. The main source of 3He is as a byproduct of the nuclear weapons stockpile. Changes in stockpile management have led to decreased production, creating a need that accelerators could meet. Beyond security, researchers in low-temperature physics and materials science are suffering severely from the shortfall in 3He. Production of the medical isotope 99mTc by reactor irradiation of a nuclear material (235U) yields the same by-products as detonation of a nuclear device. As part of the Comprehensive Test Ban Treaty, monitoring stations worldwide look for telltale by-products, specifically for the radioactive isotopes of the noble gas xenon that are difficult to contain and that propagate over large distances in the atmosphere. Medical isotope production affects the sensitivity of radio-xenon measurements by producing elevated and variable concentrations over large areas around production facilities. Accelerator-based production at required volumes and competitive costs would reduce backgrounds, enhance international monitoring capabilities, and simultaneously eliminate the need for highly enriched uranium and nuclear reactor facilities for production.

#### Global nuclear war

**Johnson 1** (Rebecca, Executive Director – Acronym Institute for Disarmament Diplomacy, The Guardian, 7-17, Lexis)

Then the international arms control and non- proliferation regimes collapsed. Americans weren't bothered at first, for hadn't the government promised a super-sophisticated force field round the whole nation that no terrorist or missile would ever penetrate? So nuclear testing resumed in Nevada for new warheads to improve the kill prospects of missile interceptors and to penetrate deep into enemies' bunkers. India had been waiting for just such a go-ahead, and Pakistan soon followed; both raced to test warheads to fit on to missiles, upping the tension in Kashmir and along the borders with China. Free now to resume its own testing, China boosted its programme to modernise and increase the size of its small nuclear arsenal. Somewhat reluctantly, Russia followed. Moscow suspended all further reductions and cooperative security and safety programmes for its still-large nuclear arsenal and facilities. Within a few short years, the nuclear non-proliferation treaty was just another discarded agreement. Many governments with nuclear power programmes developed nuclear weapons as well, while others fitted anthrax or sarin on to weapons, just in case. Most hadn't wanted to, but fearful that their neighbours would, all felt compelled. Regional rivalries grew quickly into major international problems. Alliances collapsed amid suspicion and recriminations. The burgeoning arms races even spread into outer space, threatening military surveillance, as well as public communication, entertainment and navigation. No one knew who had what. Deterrence was empty, as defence analysts calculated the advantages of the pre-emptive strike. In that terrified atmosphere of insecurity and mistrust, someone launched first. And then it was too late to speak out. The Republicans hadn't yet managed to get missile defence to work. Such a doomsday scenario is notsofanciful. On July 7, the New York Times announced that President Bush wants to ditch the comprehensive test ban treaty. A week before, the administration asked nuclear laboratories to work out how quickly the US could resume testing after its nine-year moratorium. If Bush were to back out of the test ban treaty or break the moratorium on nuclear testing - undertaken with China, Russia, Britain and France - he would also explicitly breach agreements made last May, when 187 countries negotiated measures to strengthen and implement the non- proliferation treaty. The test ban is no outdated cold war instrument, but a fundamental tool to prevent new, destabilising developments in nuclear weapons. Over several decades, from the Arctic to the Pacific, from the capitals of Europe to the deserts of Nevada, people have marched, petitioned, demonstrated and even sailed or hiked into test sites. Many have been imprisoned, and some even lost their lives trying to stop the nuclear weapons governments from polluting our oceans and earth with radioactivity from nuclear explosions, conducted for one purpose only - to make "better" nuclear bombs. It took three arduous years to complete negotiations on the comprehensive test ban treaty. It isn't perfect. No product of compromise ever is. The verification system is very thorough, but it also had to be affordable, financially and politically. The treaty stopped short of closing and dismantling the known test sites or banning laboratory testing, which the weapon states said they needed to assure the safety and reliability of weapons in the stockpiles (pending achievement of their other treaty obligations to eliminate the nuclear arsenals com pletely). But it does ban all nuclear test explosions in all environments. India panicked, because the treaty would close off its nuclear options. It refused to sign, and then let off a string of nuclear explosions in May 1998. Pakistan followed, to prove it could. Even so, the treaty held. Neither government has felt able to keep testing, which means their options for further developments were curbed. Bush has embarked on a very slippery slope that could potentially put at risk the future of the citizens of even the most advanced military nation. Mumbling and grumbling won't keep us safe. It is time to speak out.

#### Plan solves impending shortages

Kammerzell, 11 [Jaime, Jaime Kammerzell is an experienced upstream and downstream O&G journalist who has worked for many of the top petroleum publications. Email Jaime at eandpsessions@gmail.com. Helium to Move from Byproduct to Primary Drilling Target

http://rigzone.com/news/article.asp?a\_id=112735

Helium is likely to move from a derived product of natural gas production in the United States to a primary drilling target in the next five years. Historically produced as a byproduct of natural gas, the U.S. helium supply is declining, which has caused alarm throughout the industry. Why is helium so important? Most people associate helium with party balloons and squeaky cartoon voices; however, there is a very serious side of the helium industry that few people comprehend. Without helium, MRI machines don't function, NASA rockets aren't launched and semiconductor manufacturing grinds to a halt. Helium is simply indispensible to these and various other critical applications, and its increasing scarcity has many people nervous. According to Bo Sears, president of Inter-American Corporation, U.S. helium extraction from natural gas has been declining since 2000. The fast depleting Hugoton gas field, which covers parts of Kansas, Oklahoma and Texas, is yielding lower and lower volumes natural gas and helium. "Throughout the 20th Century, the Hugoton field was the source of most of the world's helium production. Hugoton gas contains concentrations of helium ranging from 0.3 percent to 1.9 percent and it represents about 75 percent of all domestic helium production," Bo Sears explained. ExxonMobil's LaBarge field in western Wyoming started producing helium in 1986 and represents the other 25 percent. As per the U.S. Helium Act of 1960, the government built a crude helium pipeline through the Texas and Oklahoma Panhandles and Kansas to collect enriched helium volumes from the Hugoton field that were being vented from nitrogen treating facilities. Multiple nitrogen rejection facilities filled the Federal Helium Reserve at the Cliffside field near Amarillo, TX with enriched off-gas, the gas that is removed from the natural gas. The Hugoton hit peak production in the late 1970s. The Bureau of Land Management (BLM), a division of the US Department of the Interior, manages the Cliffside reserve and related helium infrastructure. Cliffside is the only significant storage facility for crude helium in the world. As per the Helium Privatization Act of 1996, the BLM is now tasked with selling the helium reserve to pay down debt incurred since the enactment of the Helium Act of 1960. By virtually all accounts, the disposition price for crude helium sold, as stipulated by the 1996 Act, is substantially below the actual market price for helium. This dynamic is leading to shortages of helium to end users and an opportunity cost to the U.S. Treasury. Industrial gas companies with strap-on plants (attached to the BLM helium pipeline running from Cliffside to Bushton, KS) purchase crude helium from the Cliffside reserve via stipulated annual allocations. The composition of this crude helium is roughly 80% helium and 20% nitrogen. At these plants, engineers refine, liquefy, transport and sell the crude helium to any number of domestic and international customers. An IACX Energy helium plant at Otis, Kansas For most of the 1900s, conventional gas treating operations captured helium as a byproduct. For natural gas to meet rigid sales specifications, engineers must purify it to "something close to 1,000 Btu," Scott Sears, CEO of IACX Energy, explained. "Most pipeline interconnections have specifications that limit the quantity of inert gases being pushed into the line. A typical sales line specification is no more than 4% total inerts. And, where large nitrogen rejection facilities were placed in high-helium bearing reservoirs such as Hugoton, the nitrogen waste gas was found to contain high percentages of helium. This helium byproduct was and is further refined and sold. IACX Energy builds small scale helium purification and nitrogen rejection facilities that can be used in tandem to realize multiple profit centers for a gas treating project". "Helium sales can really augment a project's economics, an especially appealing proposition given today's low prices for natural gas," Scott Sears said. "When used in tandem, small scale helium and nitrogen rejection facilities can reap considerable value, even at lower pressures and volumes. When we started this venture late in 2006, we had no treating units in operation. Now, we have 17 units treating gas streams in seven different states." "If a producer is curious about whether or not he has helium in his gas," Scott said, "he can start by looking for high nitrogen levels – there appears to be a correlation between high helium and high nitrogen. Moreover, if any high nitrogen gas is observed from reservoirs at or near any deep-seated Precambrian uplifting events, the chances of having economic levels of helium gas is relatively good. Lastly, just because a gas analysis shows 0 percent doesn't make it so. Most gas chromatographs use helium as a carrier gas and the device cannot measure for the carrier gas. You must specifically ask the testing company for measure for helium, though not all companies are set up to do so," Scott advised. The government "formula price" for the crude helium sold from the Cliffside field (set by the Helium Privatization Act of 1996) is equal to "the total cost of the government helium program, plus accrued interest, divided by the estimated recoverable helium in the reserve," Bo Sears explained. Currently, the formula price sits at $75.75 per thousand cubic feet. What is Helium? Although helium is the second most abundant element in the universe, behind hydrogen, it is quite rare on Earth, Bo Sears explained. "It comes from two different sources, which is cause for the discrepancy. The helium that makes up nearly a quarter of the known universe is of primordial origin, meaning it has been here since the Big Bang. The helium on Earth, however, is solely the result of millions upon millions of years of radioactive decay of three isotopes (Uranium-238, Uranium-235, and Thorium-232)," Bo Sears said. The helium found on Earth is very mobile and accumulates in natural gas reservoirs.

#### Only conventional gas solves – shale gas doesn’t contain helium

Clarke 12 (Richard H – cryogenics and helium specialist at the Culham Centre for Fusion Energy, “Should we ban helium balloons?”, 12/11, http://www.guardian.co.uk/discussion/user-comments/richardhclarke)

Most shale gas contains no helium - helium diffuses through the shale - and to the extent that shale displaces 'conventional' gas that is probably not good news for helium supply. On the other hand, if the US starts to export LNG (made from a mixture of shale and conventional gas) that could help the helium market if the liquefaction ‘purge gas’ is captured and refined into liquid helium. As L1ma says, helium is continuously produced by radioactive decay in the Earth's crust. Unfortunately most of the gas diffuses out of the crust and into the atmosphere where, on average, each molecule spends about a million years in the atmosphere before being ejected into space by the solar wind. At present there is a massive 3.8 billion tonnes of helium in the atmosphere but the concentration is so small (5.2 ppm) that it would be hugely expensive and energy consuming to recover industrial quantities from the air. In those natural gas fields where helium is trapped by the cap rock it has been estimated that only HALF the helium molecules 'unearthed' during natural gas production are refined into pure helium gas or liquid helium. Helium balloons comprise about 8% of the global helium market. About 30% is used in cryogenics including medical imaging or MRI equipment, while the remainder is used in science, welding, chip or optic fibre manufacturing, and aerospace.

#### Shortages coming now – no slack capacity

Nelson 12 [Walter, Director, Helium Sourcing and Supply Chain Air Products and Chemicals, Helium: Supply Shortages Impacting our Economy, National Defense and Manufacturing, Congressional Documents & Publications]

There have been planned and unplanned maintenance outages at natural gas processing plants, as well as continuing pipeline allocations on the BLM system during well maintenance that have restricted the supply of crude helium to the U.S. refiners. In Algeria and Qatar, production of helium has decreased due to the fragile worldwide economy, as well as maintenance work at gas palnts. In addition, new helium refining projects have been slow to develop. The delayed start-up of one particular plant in Wyoming has postponed access to major new supplies of helium. Combined, these issues have reduced the global helium supply by as much as 5% to 10%. On top of this, the industry will experience an unprecedented helium shortage this summer. Beyond the developments cited above, there are currently three US plant outages or curtailments that are severely limiting the short-term supply of helium today. First, one company reduced its helium production in Wyoming by approximately 20% beginning early June while performing critical maintenance activities. Full production is not expected to resume until sometime later this summer. The impact of this curtailment is almost five percent of global supply capacity. Second, the crude helium enrichment plant that supplies the BLM pipeline system was shut down July 15th for a planned 10 day safety critical outage. During this outage helium deliveries are limited to pipeline inventory reducing global supply capacity by an additional 25%. Third, a nautral gas plant in Kansas experienced an unplanned helium equipment outage at the end of June and that outage continued through this week. The impact of this outage was another five percent reduction in global supply capacity. In helium circles this has been "the perfect storm." The combination of these issues has resulted in a significant short-term reduction in global helium supply capacity over the summer months. Global inventories would have normally served as a buffer during short-term outage events, minimizing the supply impacts. Unfortunately that's not the case this time. Air Products has had to allocate our customers and I suspect that all helium suppliers have had to do the same. We are caught in a cruch not of our making. We expect some relief soon. Most of the maintenance outages will be completed within weeks, in the U.S. and abroad.That said, it will most probably take months for the global helium supply chains to recover from these summer outages. Helium supplies will continue to remain tight through 2012 and into 2013, when new helium production is expected in Wyoming and Qatar. The Wyoming project is expected to add four percent helium capacity and the Qatar II project may add up to 18% capacity. Only after these two new plants are operational in 2013 and existing plants are running back at full output will the global supply begin to fully stabilize.

### Plan

#### The United States Federal Government should reduce restrictions on offshore natural gas extraction in the United States.

### Solvency

Offshore gas is abundant and ensures economic growth – permanently lifting the moratorium solves

Mason, 09 [Joseph R. Mason\*, Hermann Moyse Jr./Louisiana Bankers Association Endowed Chair of Banking, Louisiana State University, E. J. Ourso College of Business. The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies, <http://www.americanenergyalliance.org/images/aea_offshore_updated_final.pdf>]

Until recently, Congressional and Presidential leasing moratoria have withdrawn from production oil and natural gas resources lying between 3 and 200 miles off the coast of 20 U.S. states.1 These moratoria have recently expired, however, and several policymakers have argued that the federal moratoria should be renewed. Before renewing those restrictions, however, it makes sense to take a hard look at not only the resources that are held back, but also at the total potential economic growth that will be foregone. The present study therefore estimates the total economic benefits associated with allowing natural resource production in previously unavailable Outer Continental Shelf (“OCS”) Planning Areas. The study uses data from the U.S. Commerce Department, the U.S. Department of the Interior, and the U.S. Treasury Department to estimate the total increase in output, employment, and wages in both coastal states and the entire U.S. that can be expected to result from increased OCS production. The estimates suggest that permanently lifting the OCS moratoria would produce broad economic benefits. Those benefits are analyzed on both short- and long-term bases. Short-run effects are represented as expected annual effects during the first years of the investment (pre-production) phase; Long-run effects are represented as expected annual effects during the production phase. A summary of the estimated shortand long-run effects is presented in Table 1. Summarizing the results, increased offshore investment and production would support hundreds of thousands of new careers and provide billions of dollars in new wages and tax revenues. By the present estimates, increased production is likely to contribute an additional 0.5 percent of GDP in immediate new economic activity each year and will ultimately contribute more than 2 percent of GDP each year for thirty or more years of production. That magnitude of economic growth is expected to contribute federal and state and local tax revenue from production equivalent to approximately $350 per person over the age of eighteen per year over a similar time horizon. The total incremental contribution of increased OCS Planning Area production to GDP ismore than $8 trillion (in current dollars), and total tax benefits amount to some $2.2 trillion. Total royalty revenues amount to over $400 billion. Importantly, those benefits would be realized without any increase in direct government spending. Rather, increased OCS output would refill national, state, and local government coffers—currently depleted by the real estate and credit crises—without additional government outlays. The effects of such a stimulus are particularly attractive in the face of a severe economic downturn. Table 1: Summary of Estimated Annual Effects offshore oil and natural gas production has long been recognized as a national imperative. In 2006, the U.S. Minerals Management Service (MMS) reported to Congress that “much of the growth in the Nation’s energy demand will have to be met by OCS…if further increases of imported supplies are to be avoided.”2 MMS also estimated that “OCS oil production could account for as much as 40 percent of domestic oil production by 2010.”3 Furthermore, the MMS indicated that the OCS natural gas resources would become an essential source of energy as imports from other countries — particularly Canada—decline.4 Apart from national energy concerns, however, economic considerations also favor increased development of OCS energy resources. Specifically, the boost provided to local onshore economies by offshore production would be particularly welcome in the present economic climate. Similar to fiscal alternatives currently being pursued, OCS development would provide a long-run economic stimulus to the U.S. economy because the incremental output, employment, and wages provided by OCS development would be spread over many years. Unlike those policies, however, this stimulus would not require government expenditures to support that long-term growth. A. The Current State of Offshore U.S. Oil and Gas Production Despite its importance, U.S. oil and natural gas production in offshore areas is currently limited to only a few regions. At the present time, oil and gas is only actively produced off the coast of six U.S. states: Alabama, Louisiana, Mississippi, Texas, California, and Alaska.5 The Energy Information Administration (EIA) reports that Alabama, Louisiana, Mississippi, and Texas are the only coastal states that provide access to all or almost all of their offshore energy resources. Only two additional states — Alaska and California — are producing any offshore energy supplies. All California OCS Planning Areas and most Alaska OCS Planning Areas, however, were not open to any new facilities until the recent end of the Congressional and Presidential moratoria.6 The remaining 16 coastal states are not open to new production and are not currently extracting any offshore energy resources.7 Even without those remaining sixteen states, plus California and Alaska, the OCS is already the most important source of U.S. energy supplies. According to the MMS, “the Federal OCS is a major supplier of oil and natural gas for the domestic market, contributing more energy (oil and natural gas) for U.S. consumption than any single U.S. state or country in the world.”8 That is, OCS production currently meets more U.S. energy demand than any other single source, including Saudi Arabia. B. Offshore Oil Production Stimulates Onshore Economies Offshore oil and gas production has a significant effect on local onshore economies as well as the national economy. There are broadly three “phases” of development that contribute to state economic growth: (1) the initial exploration and development of offshore facilities; (2) the extraction of oil and gas resources; and (3) refining crude oil into finished petroleum products. Industries supporting those phases are most evident in the sections of the Gulf of Mexico that are currently open to offshore drilling. For example, the U.S. shipbuilding industry — based largely in the Gulf region – benefits significantly from initial offshore oil exploration efforts.9 Exploration and development also requires specialized exploration and drilling vessels, floating drilling rigs, and miles and miles of steel pipe, as well as highly educated and specialized labor to staff the efforts. The onshore support does not end with production. A recent report prepared for the U.S. Department of Energy indicates that the Louisiana economy is “highly dependent on a wide variety of industries that depend on offshore oil and gas production”10 and that offshore production supports onshore production in the chemicals, platform fabrication, drilling services, transportation, and gas processing.11 Fleets of helicopters and U.S.- built vessels also supply offshore facilities with a wide range of industrial and consumer goods, from industrial spare parts to groceries. As explained in Section IV.G, however, the distance between offshore facilities and onshore communities can affect the relative intensity of the local economic effects. The economic effects in the refining phase are even more diffuse than the effects for the two preceding phases. Although significant capacity is located in California, Illinois, New Jersey, Louisiana, Pennsylvania, Texas, and Washington, additional U.S. refining capacity is spread widely around the country.12 As a result, refinery jobs, wages, and tax revenues are even more Figure 1: Percent of Mortgages 90+ days Delinquent, by County, 2008Q2 likely to extend into other areas of the country, including non-coastal states like Illinois. C. Economic Stimulus from OCS Drilling Can Significantly Benefit Coastal Economies Stressed by the Mortgage Crisis and Recession Figure 1 illustrates the percent of mortgages ninety or more days delinquent by county in the third quarter 2008. It is easy to see that most of the hard-hit regions are in the coastal states, including especially those close to restricted OCS resources. States like California and Florida, especially hard hit with mortgage foreclosures and facing fiscal crises resulting from decreased property, sales, and income taxes, could benefit dramatically from OCS development. Even interior states like Illinois, Pennsylvania, and Indiana stand to benefit, however, as those are home to many refining and chemical industries that ride the economic coattails of oil exploration and extraction. In summary, the benefits of OCS development, while particularly focused on coastal states, are to be found nationwide. The rest of this paper is devoted to estimating the magnitude of those benefits to provide valuable economic estimates to be used in rational decision making on the costs and benefits of OCS development. III. Present Offshore Oil and Gas Resource Estimates To determine the economic effect of increased offshore oil and gas production on each state, it is first necessary to determine each state’s recoverable resources. The most reliable estimates of total offshore recoverable resources are provided by Energy Information Administration (EIA). The EIA estimates these data for each Outer Continental Shelf Planning Area. Because several OCS Planning Areas adjoin more than one state, the EIA does not provide state-by-state resource estimates. This paper takes a two-step approach to estimating state-by-state resources. First, OCS Planning Areas are apportioned to the adjoining states by assuming that a state’s share of oil and gas resources (and hence the benefits of utilizing those resources) is proportional to its share of the U.S. coastline that adjoins an OCS Planning Area. Then, the value of the state resources are estimated by applying the long-run average price of oil and gas to each resource state’s share. A. Estimating State Offshore Oil and Gas Resources Significant oil and gas resources lie under the U.S. Outer Continental Shelf. According to the EIA, the OCS (including Alaskan OCS Planning Areas) contains approximately 86 billion barrels of recoverable oil and approximately 420 trillion cubic feet of recoverable natural gas.13 As noted by the White House, however, the OCS estimates are conservative.14 Of the total OCS resources, a significant portion was unavailable to exploration until recently. Specifically, Presidential and Congressional mandates banned production from OCS Planning Areas covering approximately 18 billion barrels of recoverable oil and 77.61 trillion cubic feet of recoverable natural gas.15 These bans covered approximately 31 percent of the total recoverable OCS oil resources and 25 percent of the total recoverable OCS natural gas resources. Figure 2, which was originally produced by the EIA, visually demonstrates the areas (in blue) that were previously unavailable. As noted previously, the estimated resources illustrated in Figure 2 should be considered very conservative lower bounds of recoverable energy resources. To estimate the state-by-state impact of increased oil and gas production in the OCS, the OCS Planning Area resources are apportioned to each coastal state based on the local communities that provide labor, materials, and support services for offshore production. The analysis of economic impact therefore hypothesizes that the economic benefits associated with offshore oil and gas production accrue onshore firstly in the local communities that provide the most convenient labor, materials, and support services for offshore production. In other words, if distance is important, communities closer to the oil or gas field are more The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies • 5 likely to provide goods and services than are communities further away. Thus, OCS Planning Area resources — and the local economic benefits associated with exploiting those resources — are apportioned by each state’s share of the ocean coastline bordering an OCS Planning Area. State coastline data is available from the Congressional Research Service (CRS).16 Based on this apportionment, the available and total offshore resources associated with each state are illustrated in Table 2. As previously noted, a large portion of currently unavailable resources in Figure 2 lie off the coast of states — such as California and Florida — that have been hard hit by the recent real estate crisis. B. Estimating the Value of State Offshore Oil and Gas Resources An economic analysis of increased offshore oil and gas production also requires estimates of the value of likely resources. As noted above, economic benefits of utilizing OCS resources accrue from three primary sources: (1) exploration/platform investments; (2) production; and (3) refining. Sources (1) and (3) produce initial effects — that is, new industry expenditures — today; in contrast, source (2) produces economic effects only once production begins. The analysis therefore considers “initial” economic effects as those that flow from exploration or investments in new refining capacity and long-term economic effects as those that flow from production and ongoing refining. 1. Exploration and Offshore Facility Development In contrast to other industries, the high fixed investment costs associated with offshore oil and gas production produce large initial investments that reverberate throughout the economy. Once oil or gas resources are located, billions of additional dollars must be spent before the well produces even $1 of revenue. For example, oil exploration costs can amount to between $200,000 and $759,000 per day per site.17 Additional production in the U.S. will also require a costly expansion in refining capacity as well. Taken together, the fixed expenditures that precede actual offshore oil and gas production can amount to billions of dollars. For example, Chevron’s “Tahiti” project in the Gulf of Mexico is representative of the large investments that firms must make before production is achieved. In 2002, Chevron explored the Tahiti lease — which lies 17. See Statement of John Hofmeister, President, Shell Oil Company, Before the U.S. House Select Committee on Energy Independence and Global Warming, Apr. 1, 2008 [hereinafter Shell Testimony], at 7-8 (discussing the run-up in Gulf of Mexico exploration costs). The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies • 7 100 miles off the U.S. coast at a depth of 4,000 feet — and found “an estimated 400 million to 500 million barrels of recoverable resources.”18 Chevron estimates that it will take seven years to build the necessary infrastructure required to begin production at Tahiti.19 The firm estimates that its total development costs will amount to “$4.7 billion — before realizing $1 of return on our investment.”20 As a typical U.S. offshore project, the Tahiti project provides a wealth of information regarding the up-front investment costs, length of investment, and lifespan of future OCS fields. As noted above, the Tahiti field is estimated to hold between 400 million and 500 million barrels of oil and oil equivalents (primarily natural gas) and is expected to require an initial fixed investment of $4.7 billion. Using the mid-point resource estimate of 450 million barrels of oil equivalent, up-front development costs amount to approximately $10.44 per barrel of oil resources or $1.86 per 1,000 cubic feet of natural gas resources.21 These costs will be spread over 7 years, resulting in average up-front development expenditures equal to $1.49 per barrel of oil and $0.27 per 1,000 cubic feet of natural gas.22 Chevron also estimates that the Tahiti project will produce for “up to 30 years”.23 Although investment and production times vary widely,24 the analysis that follows uses the Tahiti project numbers — an average initial investment period of seven years followed by an average production period of 30 years — as indicative of the “typical” offshore project. I will thus assume an average initial investment period of seven years followed by an average production period of 30 years. The speed of OCS development also factors into the analysis. Because most areas of the U.S. OCS have been closed to new exploration and production for almost forty years, it is unclear how quickly firms would move to develop new offshore fields. Given its large potential resources, however, the OCS is sure to attract significant investment. Without the benefit of government data, a rough estimate suggests that annual total investment in OCS fields would be $9.09 billion per year.25 Assuming a constant investment flow, the annual investment costs in each state’s OCS planning area share are illustrated in Table 3. Recall that these annual expenditures are expected to last, on average, the full seven years of the development phase. Notice in Table 2 that additional investment in states that already support significant production — Alabama, Louisiana, Mississippi, and Texas — are limited. Some of the greatest benefits accrue to areas that are home to enormous — but unavailable — total resources: California and Florida. While other states’ benefits appear small in comparison, that is only because of the sheer magnitude of the benefits available to California and Florida. North Carolina would be associated with some half-billion dollars of development expenditures per year for seven years, and Virginia some quarter-billion dollars of development expenditures. In aggregate, the annual expenditures associated with developing new offshore resources in the OCS amount to approximately $9.09 billion per year for a seven-year development horizon. 2. Production The likely value of state recoverable oil and gas resources is estimated using the likely lifetime revenue that could be generated by the project. In that case, average wholesale energy prices provide the information necessary to translate resources into revenues. Taking the simple average of the EIA’s latest inflation-adjusted energy price forecasts through 2030 as provided by its Annual Energy Outlook 2009, the average inflationadjusted price of oil will be $110.64 per barrel and the average inflation-adjusted price of natural gas will be $6.83 per thousand cubic feet.26 At these prices, the estimated state resources have the potential values indicated in Table 4. The value of each state’s available resources are calculated as the sum of (1) its share of available OCS Planning Area oil resources times $110.64 per barrel and (2) its share of available OCS Planning Area natural gas resources times $6.83 per thousand cubic feet. The same method applies to the valuation of total state OCS resources. At these prices, the OCS resources apportioned to coastal states have the following dollar values reported in Table 3. As in Table 1, Table 4 is constructed to show both states’ available resources and the total resources at their disposal. By the estimates in Table 4, states such Table 3: Annual Investment Costs and New Capacity in New OCS Resources as California, facing a budget crisis in the current recession, have an estimated $1.65 trillion in resources available in nearby OCS planning areas. Florida, while not facing as dire a fiscal crisis, has about $0.55 trillion in resources available in nearby OCS planning areas. Table 4 suggests that a permanent relaxation of all federal OCS production moratoria would unlock more than $3.4 trillion in new production among all the coastal states. 3. Investments in Incremental Refining Capacity Since U.S. refineries are currently operating near maximum capacity increased offshore oil and gas production would also spur investment in new refineries. The U.S. refining industry is presently operating at 97.9 percent of capacity27 and can no longer depend on excess foreign refining to meet production shortfalls arising from seasonality or repairs.28 In response, many large refiners are already considering refinery expansions: ConocoPhillips announced that it planned to spend $6.5 billion to $7 billion on capacity expansion at its U.S. facilities; Chevron has also considered a major refinery expansion29; and while Shell is completing a $7 billion expansion at its Port Arthur, Texas, refinery it is considering further expansion elsewhere.30 Future refinery investments are likely to occur in the few U.S. states that already host significant U.S. refineries. This result is largely due to environmental restrictions that severely limit the placement of new refining capacity.31 Table 5 presents operating oil refining capacity for each U.S. state and for the U.S. as a whole.32 Note that capacity is primarily concentrated in California, Louisiana, and Texas. Table 5 suggests that any substantial increase in U.S. offshore oil production would require a commensurate increase in U.S. refining capacity. The U.S. presently has an operating refining capacity of approximately 6.287 billion barrels of crude oil per year. According to the rough investment figures presented in Table 3, which represent a conservative view of likely new offshore development, new OCS capacity would add approximately 3.773 billion barrels per year. That new OCS production, which represents only a small fraction of the total OCS resources, would amount to about sixty percent of current U.S. operating refinery capacity. Because some OCS refining production would most likely substitute for foreign production, however, the analysis conservatively assumes that only one-quarter of this new OCS production necessitates additional U.S. refinery capacity. That is, I estimate that U.S. refinery demand would increase by 943.25 million barrels per year, or 15 percent of current installed capacity.33 Even this modest capacity increase would require substantial new investments. In response to existing capacity constraints, Shell is already increasing the capacity of its Port Arthur, Texas, refinery. This expansion will take approximately two and one-half years to complete and cost $7 billion. The facility will add 325,000 barrels per day (or 118.6 million barrels per year) in new capacity, at a cost of approximately $59.02 per barrel of new annual capacity.34,35 As noted above, since tough environmental regulations effectively limit new refinery capacity to a few states, refinery investments are likely to be limited to only a few states with large existing capacity. These states can be reasonably assumed to be the same states the already have large installed refinery capacity. Hence, incremental refinery capacity will be added predominantly in states already home to large refining capacity— those with a present capacity of more than 200 million barrels per year. There are seven such states: California, Illinois, Louisiana, New Jersey, Pennsylvania, Texas, and Washington. Assigning new capacity investments proportionally based on their present capacity, new refining capacity investments and associated investment costs are illustrated in Table 6. Based on this apportionment, expected increases in offshore oil production will induce approximately $22 billion in refining capacity investments each year for two and one half years. California, Texas, and Louisiana will receive the bulk of this investment, but investments of more than $1 billion annually can be expected in Illinois, New Jersey, Pennsylvania, and Washington. IV. Increased Investments in Offshore Oil and Gas Production Will Cause Substantial Increases in Wages, Employment, and Taxes, and Profound Effects on Communities Throughout the Nation Onshore state and local economies benefit from the development of OCS resources by providing goods and services to offshore oil and gas extraction sites. Onshore communities provide all manner of goods and services required by offshore oil and gas extraction. A variety of industries are involved in this effort: shipbuilders provide exploration vessels, permanent and movable platforms, and resupply vessels; steelworkers fashion the drilling machinery and specialized pipes required for offshore resource extraction; accountants and bankers provide financial services; and other onshore employees provide groceries, transportation, refining, and other duties. These onshore jobs, in turn, support other jobs and other industries (such as retail and hospitality establishments). The statistical approach known as an “input-output” analysis measures the economic effects associated with a particular project or economic development plan. This approach, which was pioneered by Nobel Prize winner Wassily Leontif, has been refined by the U.S. Department of Commerce. The most recent version of the Commerce Department’s analysis is known as the Regional Input-Output Modelling System, or “RIMS II.” The RIMS II model provides a variety of multipliers that measure how an economic development project — such as offshore drilling — would “trickle down” through the economy providing new jobs, wages, and government revenues. This analysis can be broken down into two parts: (1) a “direct” analysis measuring the benefits that arise from industries that directly supply offshore oil and gas exploration and (2) the “final” analysis that measures the direct and indirect benefits associated with offshore exploration. The RIMS II model is the standard method governmental authorities use to evaluate the benefits associated with an economic development project. According to the Commerce Department, the RIMS II model has been used to evaluate the economic effects of many projects, including: opening or closing military bases, tourist expenditures, new energy facilities, opening or closing manufacturing plants, shopping malls, sports stadiums, and new airport or port facilities. 36 State and local governments have also used the RIMS II model to perform economic analyses. For example, the Kansas Geological Survey (KGS) used the RIMS II model to evaluate the impact of oil and gas production on the Kansas economy.37 Using the RIMS II multipliers for Kansas, the KGS estimated that the increased value of oil and gas production between 1998 and 2001 induced $500 million in new output, generated $64.3 million in new earnings, and produced 4,742 new jobs in the state of Kansas.38 The following analysis mirrors the KGS study by using Commerce Department multipliers to perform an economic analysis of the benefits associated with increased offshore oil and gas production. Unlike some other studies, the effects estimated here are net effects. Specifically, the BEA multipliers used here ensure that the approach provides the total net increase in wages, employment, and government revenues.39 A. The Bureau of Economic Analysis Multipliers Allow Researchers to Estimate the Economic Effects of Industry Growth The Bureau of Economic Analysis RIMS II model provides multipliers that allow researchers to consider two types of effects of any industry or growth: (1) the initial (“direct”) effects and (2) the comprehensive (“final-demand”) effects. The two types of analysis require different information. For example, the initial effect on income or employment can be measured if the user has information regarding the income or employment that is expected to be created by a given economic development project.40 In contrast, the comprehensive effect on output, income, or employment can be measured if the user has information on changes in final demand.41 Because specific extraction projects have not been developed for currently unavailable OCS resources, no data presently exist that can be used to estimate the initial (“direct”) effects associated with increased OCS extraction. The straightforward estimates of the total value of the resources, however, can be used as a measure of the increase in final demand that would occur over the lifetime of all currently unavailable OCS oil and gas fields. Three final demand multipliers are applied to the resource estimates in Table 4. First, BEA output multipliers measure the total increase in economic activity — including the effect on all other industries — resulting from $1 of new industrial activity in a particular geographic region.42 Next, BEA earnings multipliers measure the increase in wages resulting from $1 of new industrial activity.43 Finally, BEA employment multipliers measure the increase in employment (in fulltime equivalent jobs) associated with a $1,000,000 increase in industrial activity.44 Important to understanding the results that follow, each BEA multiplier measures the changes that are expected to occur within one year.45 The BEA multipliers are based on actual changes in output, wages, and employment that result from changes in economic activity.46 If a state does not have any expenditures for a particular industry — such as oil and gas extraction — the BEA calculates a multiplier of zero.47 Although the BEA suggests that a “billof- goods” approach can be applied instead to accurately predict changes in output,48 this approach requires very specific data for each and every project in each state. Because specific bill-of-goods data is not available for future OCS oil and gas extraction projects, a bill-of-goods approach cannot be applied here. To circumvent this limitation, the present analysis estimates a RIMS II multiplier for each state with a BEA value of zero by applying the simple average multiplier for all other coastal states with valid BEA multipliers. This approach is not meant to be definitive; rather, it is an attempt to roughly estimate the effect that new industry would have on states that do not presently have any oil and gas extraction industries. This treatment is applied to five coastal states that adjoin OCS Planning Areas: Georgia, Maine, New Hampshire, Rhode Island, and Washington. The final demand multipliers used for the analysis are presented in Appendix Table A3. The direct effect associated with additional oil and gas extraction varies by state. For example, in Delaware an extra $1,000,000 of oil and gas extraction translates into $1,437,700 of additional annual output, $339,300 in additional annual wage income, and approximately 4.5 additional full-time jobs for the year. In Texas, however, the same $1,000,000 translates into $2,072,100 in additional output, $508,500 in additional wage income, and approximately 8.25 additional full-time jobs. To determine the economic effect of providing new refining capacity, I use the BEA multipliers for the seven affected states (see Appendix Table A4). In the following sections, I apply these two multipliers to their respective investment costs to determine the state-by-state and overall effect of increased offshore oil and natural gas production on the U.S. economy. B. Opening OCS Planning Areas Would Unleash More Than $11 Trillion in Economic Activity The broadest measure of the incremental effect of increased OCS oil and natural gas extraction is the effect on total economic output. Output is generally expressed as Gross Domestic Product (GDP), which measures the total production of goods and services in a given country. The corollary at the state level is known as Gross State Product (GSP). BEA’s final demand output multipliers can be used to perform two analyses. First, the multipliers are applied to initial investment costs in Table 3 to determine the likely annual benefits that would accrue in the first years the OCS is open to development. Then, the multipliers are applied to the resource value estimates in Table 4 to measure the expected total increase in output over the lifetime of the projects. Estimates are provided for both coastal states and the U.S., as a whole. In total, the investment and production phases together can be expected to contribute over $11 trillion in GDP over the project lifespan. Until OCS production begins, onshore communities will realize only the benefits associated with offshore investment. These benefits take two forms: (1) the development of the offshore facilities themselves and (2) the expansion of onshore refining capacity. These two effects, taken together, provide a rough approximation of the additional output that would be created by allowing greater access to offshore resources. Using the investment estimates from Table 3 and Table 6 and BEA multipliers in Table A3 above, the estimated increase in coastal state economic output is presented in Table 7. The figures in Table 7 only provide the increase in output that is generated in the same state as the increase in production. As an integrated economy, however, output in one state is tied to output in other states. For example, Alabama workers building a facility off the Alabama shore might use steel produced in Illinois and fabricated into pipes in Missouri. These effects may be considered “secondary” effects because they spread from one state to other states. Using the individual multiplier for Alabama would thus under-report the total effect associated with production off the coast of Alabama. Using the total U.S. multipliers (2.2860 for refining and 2.3938 for extraction), the total increase in U.S. output is estimated to be about $0.5 trillion, or approximately $73 billion per year for the first seven years the OCS is open. For comparative purposes, a $73 billion stimulus amounts to approximately 0.5 percent ondary effects, being greater than any of the individual state multipliers.50 As a result, the state-by-state analysis in Table 8 misses approximately $2.45 trillion in secondary output. The total increase in output in the United States is estimated to total approximately $8.2 trillion or about $273 billion per year, which amounts to just over two percent of GDP. C. Opening OCS Planning Areas Could Create Millions of New Jobs An economic expansion tied to increased OCS resource production would also create millions of new jobs both in the extraction industry and in other sectors that serve as suppliers or their employees. The analysis below estimates employment increases that can be expected from opening up previously unavailable OCS Planning Areas. As before, effects are estimated for coastal states and the nation using the applicable BEA multipliers. Following that analysis, the paper compares the types of jobs that will be created in terms of the wage structure and seasonality relative to other existing jobs in coastal states. 1. BEA Multiplier Analysis As above, the analysis estimates both the immediate andthe total economic effects associated with increased OCS oil and gas production. Using the investment multipliers (denominated in job-years per $1 million change in final demand) in Table A3 and total investment costs in Table 3, the expected coastal state changes in employment are represented in Table 9.51 The annual increase in coastal state employment from initial investments in previously unavailable OCS planning areas and additional refining capacity is estimated to be 185,320 fulltime jobs per year. Again, this number does not consider the secondary effects of investment in productive capacity and refining to other U.S. states. To estimate the total increase in employment tied to production in previously unavailable OCS Planning Areas, the BEA’s final-demand employment multiplier is applied to the estimated total resource value estimates in Table 4. The total increase in U.S. employment from the investment phase is approximately 271,570 full-time jobs per year. Applying the BEA multipliers to the estimated production value results in the employment estimates in Table 10.52 According to Table 10, approximately 870,000 Table 10: Increase in Annual Coastal State Employment from coastal state jobs would be created in addition to the jobs created during the initial investment phase. Again, the state BEA multipliers do not account for increases in employment outside of the target state. As a result, secondary jobs created in one state based on OCS production in another state are omitted from the totals in Table 10. The total increase in U.S. employment in all states that results from increased OCS production is estimated by applying the overall U.S. employment multiplier (10.4152 job-years per $1 million) to the total value of the additional OCS resources ($3,427,667,487,135), suggesting that approximately 35,700,000 total job-years would be created over the course of production in newly opened OCS Planning Areas. If we again assume a 30 year production horizon, approximately 1,190,000 jobs would be sustained for the entire production period, approximately 340,000 of which are secondary jobs outside the coastal regions. 2. Evaluation of the Types of New Employment The BEA data also allow an analysis of the types of employment that would be supported by increased offshore oil and gas extraction. Increased investment and production in previously unavailable OCS oil and gas extraction and the ancillary industries that support the offshore industry would produce thousands of new jobs in stable and valuable industries. As above, the immediate and the long-run benefits are considered separately. The benefits are broken down using specific BEA multipliers for each industry, which can be used to determine which industries will benefit the most from increased offshore oil and gas production. Table 11 reports the expected total increase in annual employment over the first years of the investment phase using the multipliers in Table A5. Table 11 gives a sense of the distribution of the 271,572 jobs created in the investment phase and sustained during Table 12: Changes in Annual Employment from the first seven years of the investment cycle. The majority of new positions (162,541 jobs, or 60 percent) would be created in high-skills fields, such as health care, real estate, professional services, manufacturing, administration, finance, education, the arts, information, and management. Table 12 reports the increase in annual employment over the life of the production phase. That is, the jobs in Table 12 would be created in the first year of production and maintained for 30 years. These gains thus represent new full-time careers rather than just one new job for one year. Although the largest total increase in employment would occur (quite naturally) in the mining industry, significant numbers of jobs would be created in other industries. Again, many of these new jobs would be created in high-skills fields. These high-skills sectors represent approximately 49 percent of all new jobs and approximately 61 percent of all new non-mining jobs.53 D. Opening OCS Planning Areas Can Release Trillions of Dollars of Wages to Workers Hit by Recession The BEA multipliers also allow an analysis of the effect Table 13: Increase in Annual Wages from of increased OCS production on wages in affected states. To estimate how initial investments increase wages, the BEA’s final demand earnings (wage) multipliers are applied to the investment estimates. Table 13 reports the results. As Table 13 indicates, initial increases in investment would yield approximately $10.7 billion in new wages each year for the first few years of investment. To estimate the total wage effects associated with OCS oil and gas production over a thirty-year period, the BEA multipliers in Table A3 are applied to the total value of the incremental OCS resources that would be newly opened to production. Table 14 reports the results. Table 14 indicates that increased OCS production would yield approximately $1.406 trillion in additional wage income to workers in coastal states over the lifetime of the fields (or $46 billion per year over 30 years). The estimates in Tables 13 and 14 again do not capture secondary effects. Applying the total U.S. wage multipliers to the initial investment, suggests that the increased investment would generate approximately $15.7 billion in additional annual wages per year for the first seven years. Applying the total U.S. wage multiplier (0.6109) to the total value of applicable OCS resources ($3.4 trillion), suggests that the increased production would generate approximately $70 billion per year for the next thirty years, or approximately $2.1 trillion in additional wage income.54 As with employment, the increase in wages can also be understood by examining specific industries that would benefit from increased offshore oil and gas production. Tables 11 and 12 indicated millions of new jobs would be created and that most of those would be in professional fields. The U.S. Bureau of Labor Statistics (BLS) 2007 Occupational Employment and Wage Estimates suggest that the new employment in the Oil and Gas Extraction Industry would generally pay higher wages than similar occupations in other industries. As Table 15 indicates, the average wage in the Oil and Gas Extraction industry is 64 percent higher than the average U.S. wage. Furthermore, the Oil and Gas Extraction industry pays higher average wages for 16 of the 17 job classifications. BLS data also suggest that all four broad industry classifications related to oil and gas extraction pay higher wages and similar jobs in other industries. Table 16 shows that jobs in: (1) Oil and Gas Extraction, (2) Pipeline Transportation of Crude Oil, (3) Petroleum and Coal Products Manufacturing, and (4) Support Activities for Mining, indicated in Table 16, typically pay higher wages than the average American job. Taking this broader measure,55 the average job created by increased offshore oil and gas production pays approximately 28 percent more than the average U.S. job. E. Opening OCS Planning Areas Can Contribute Trillions of Dollars in Taxes and Other Public Revenues to Local, State, and Federal Governments Greater output, more jobs, and higher wages translate into higher tax collections and increases in other sources of public revenues. The MMS Report to Congress suggests that public revenues derived from OCS extraction are significant — the U.S. federal government has collected more than $156 billion in lease and levy payments for OCS oil and natural gas production.56 Note that this amount counts only lease and royalty payments and thus does not include any sales and income taxes paid by firms or workers supported by OCS production. The present analysis expands the MMS’s analysis by taking a broad measure of the total tax revenues (from all sources) that federal, state, and local governments would enjoy from increased OCS oil and natural gas production. Conservative estimates suggest that seven years of initial annual exploration and refining investments would produce approximately $4.8 billion annually in coastal state and local tax revenue and $11.1 billion in U.S. federal tax income.57 Over thirty years of production, I estimate that the extraction phase of OCS development would yield approximately $561 billion ($18.7 billion per year) in coastal state and local tax revenue and approximately $1.64 trillion ($54.7 billion per year) in new U.S. federal tax income. To estimate the increase in state and local tax revenue attributable to expanded OCS production, the analysis follows the approach outlined by the Federal Reserve Bank of Boston to determine annual state and local tax burdens as a share of Gross State Product (GSP).58 For each state and the District of Columbia, the state and local tax burden can be calculated by dividing annual state and local tax revenue by annual Gross State Product. Data for state and local tax revenues are released by the U.S. Census Bureau annually with a two year lag. As such, the state and local tax burden calculations are based on the most recent available fiscal year, 2006.59 Those data produce the average state and local tax burden in 2006 in each state. To simplify the analysis, it is assumed that these state and local tax rates continue at the 2006 level indefinitely into the future. The effective tax burdens are applied to both the initial investments and to the total lifetime production support revenues. Initially, state and local tax revenues will flow from investments in new offshore facilities and onshore refineries. Applying the state and local tax burdens to the investment figures, incremental annual state and local tax revenues are reported in Table 17. Table 17 indicates that states and localities would receive approximately $4.8 billion in annual incremental tax revenues during the first few years of the investment stage. As before, those tax revenues do not include taxes levied on “secondary” revenues.60 Additional tax revenues will flow from the extraction phase of production. Applying the same state and local effective tax rates to the estimates of the total change in Gross State Product, the analysis estimates 60. It is impossible to quantify these benefits because state and local taxes differ from state to state and because the BEA does not provide a means to allocate the secondary revenues to particular states. To be conservative, the analysis estimates only the revenues that can be accurately assigned and measured. that oil and natural gas extraction in previously unavailable OCS Planning Areas will generate approximately $18.7 billion in annual incremental coastal state and local tax revenue, or over $545 billion over the thirty-year extraction period, as indicated in Table 18. Again, note that this tax revenue is the incremental tax revenue produced by allowing resource extraction in previously unavailable OCS Planning Areas. That is, $0 in additional state and local tax revenue would be created if the recent moratoria are extended indefinitely. As above, the state and local tax estimates in Table 18 do not include taxes levied on secondary revenues. The estimates thus represent a lower bound 22 • The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies on potential state and local tax revenues generated from increasing offshore oil and gas production. The increase in economic activity generated by OCS exploration and drilling would also produce significant additional federal tax revenues. According to the IRS, the average effective tax rate in the United States in FY2007 was 20.02 percent of GSP. 61 Applying this rate to the total annual investment expenditures ($55.5 billion) suggests that U.S. federal tax receipts would increase by $11.1 billion per year during the seven years of the investment phase. Applying the same rate to the total increase in U.S. output ($8.2 trillion) suggests that increased offshore oil and gas extraction would yield approximately $54.7 billion in annual incremental federal tax receipts, totaling about $1.64 trillion in additional federal tax revenue over the lifetime of the applicable fields. In total, therefore, opening OCS planning areas to exploration and drilling can generate initial tax revenues of about $16 billion per year, rising to almost $75 billion per year in the production phase. Dividing the benefit equally among all US taxpayers (population 18 years of age or older) yields an immediate benefit of about $75 annually per taxpayer, rising to almost $350 per taxpayer in the production phase. Unlike typical U.S. tax “rebates,” however, this tax reduction does not come at the expense of increased U.S. borrowing. Rather, these amounts represent net tax reductions. Increased offshore oil and gas production would also increase federal lease and royalty payments. The U.S. Department of the Interior enforces a royalty rate on OCS oil and gas projects that generally varies between 12.5 percent and 18.75 percent.62 Conservatively applying the lower bound of this range, 12.5 percent, to the value of incremental resources implies that total future royalty payments would amount to approximately $428.5 billion. 63 Amortized over a 30 year period, these payments would amount to an additional $14.3 billion per year in federal royalty revenue.64 If the federal royalty revenue is considered with the federal tax receipts, increased offshore oil and gas extraction would yield about $2.07 trillion in additional federal revenue, or an extra $69 billion each year for 30 years. A portion of federal lease and royalty payments are reserved for environmental and historical causes. Specifically, MMS disburses revenues from offshore oil and gas production to states under the Coastal Impact Assistance Program (CIAP), to the Land and Water Conservation Fund (LWCF), and to the National Historic Preservation Fund (HPF). Payments to all three organizations are constant each year: CIAP receives $250 million, the LWCF receives $900 million, and the HPF receives $150 million.65 Although these payments are capped at the moment, a portion of the incremental federal revenue derived from increased OCS production could be added to future CIAP, LWCF, If the federal royalty revenue is considered with the federal tax receipts, increased offshore oil and gas extraction would yield about $2.07 trillion in additional federal revenue, or an extra $69 billion each year for 30 years. The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies • 23 and HPF funds. Incremental federal revenue could also be used to increase the payments presently made to states that adjoin OCS territories.66 F. Communities Nationwide Will Benefit from Increased Health, Education, Welfare, and Social Services Communities around the country would also realize knock-on effects associated with increased offshore oil and gas production. These effects flow from the increase in high-wage, high-skills employment associated with the expansion. For example, a new offshore facility may induce the development of onshore support facilities such as shipyards and refineries. Employees in these new industries, in turn, would increase community demand for health care, education, and other community services that are available to all residents (whether they are employed by the offshore industry or not), as well as tax revenues to fund those expansions. The estimated increase in employment in the health and education fields is but one indication of the tertiary effects associated with increased offshore oil and gas production. As indicated in Table 11, an increase in offshore oil and gas production would initially support 20,760 new health care providers and 5,149 new teachers per year. Over the long term, offshore production would produce 3,762,893 new health care job-years and 950,492 new education job-years (Table 12). Assuming a 30 year production span, increased offshore production would yield 125,000 new health care providers and 32,000 new teachers per year. Considering that many of these jobs would be based in small coastal towns like Port Fourchon, Louisiana (which is home to substantial resources serving Gulf of Mexico offshore production), these estimates represent large relative increases.67 Indeed, in some communities the increase in demand associated with new jobs tied to offshore production may mean the difference between having a local hospital and school or driving several hours to a facility in the next town or the next county. G. The Economic Effects Associated with Increasing U.S. Offshore Oil and Gas Production Vary by Drilling Distance from Shore Government sources indicate that the economic effects associated with increased OCS oil and gas production are likely to vary with the distance from shore. This dynamic has important implications for the analysis because increasing OCS development includes a mix of both shallow and deep water projects. Deep water projects are far more expensive than shallow water projects, however, so far fewer are undertaken.68 According to the MMS, the cost of developing a deep water field can exceed $1 billion.69 This cost far exceeds the cost of developing a shallow field, which the MMS places at approximately $100 million.70 While some argue that deep water fields are significantly larger than shallow water fields, that is based on an observational bias arising in part because firms will only bear the high cost of development for sufficiently large fields.71 Nonetheless, while it is estimated that Applied to the total volume of incremental OCS resources, total future lease and royalty payments could amount to approximately $169 billion in additional revenue. Amortized over a 30-year period, this revenue would amount to an additional $5.6 billion in federal revenue per year. 24 • The Economic Contribution of Increased Offshore Oil Exploration and Production to Regional and National Economies deep and ultra deep water oil resources are some 35-60 times the magnitude of shallow water resources, the economics of exploration and development, as well as production, dictate that deep and ultra deep projects will not generate sufficient production to relieve the importance of shallow water projects any time soon. As Table 19 indicates, while deep water oil production accounted for an increased share of total U.S. offshore production in recent years, the trend is likely to subside as expensive projects are curtailed in the current low oil price environment. The increased cost and offshore distance associated with deep water operations has several implications for the above economic analysis. While the increased cost of development translates into increased purchases of goods and services in local communities, as distance increases shore operations can be more easily centralized into a few communities that serve many deep water fields. Thus the local economic effects associated with deep water production are likely to be greater and more concentrated than they are for shallow water production. Port Fourchon, Louisiana, is a leading indicator of how deep water production may concentrate economic benefits into a few communities. The Greater Lafourche Port Commission was first organized in 1960.72 At that time, the surrounding Lafourche Parrish had a population of 55,381.73 Since then, the port and the surrounding area have experienced significant growth tied to Port Fourchon’s central role in offshore oil and gas production. Today, Port Fourchon services half of all drilling rigs presently operating in the Gulf of Mexico.74 Furthermore, current plans call for more than half of all new deep water drilling platforms in the Eastern and Central Gulf of Mexico to use Port Fourchon as their service base.75 Economic development has swollen the population of Lafourche Parrish, to 95,554 in 2006.76 Over the period 1960-2006, the Lafourche Parrish population grew by 72.5 percent whereas the State of Louisiana population grew 31.6 percent.77 Given the concentration of deep water Gulf of Mexico operations at Port Fourchon, it is reasonable to assume that similar deep water service concentrations may arise in other areas. Furthermore, the costs of deep water exploration and drilling continue to be subsidized by the U.S. government in its deep water royalty relief program.78 Federal subsidies diminish the potential public revenue gains from opening OCS Planning Areas and subtract from wage, employment, and quality of life gains to citizens that can be expected to arise as a result of such development. Over the life span of development, OCS planning areas will contribute approximately $8.7 trillion dollars to U.S. economic growth, of which some $2.2 trillion can be expected to be paid out in wages to employees in almost 38 million annual jobs, many in high-paying professional career fields. That economic growth will also generate more than $1.6 trillion in Federal tax revenues, almost $0.6 trillion in state and local tax revenue, and $0.4 trillion in royalty revenue that will be split between federal and state governments. Those revenues will contribute to schools, health centers, and infrastructure projects that will contribute substantially to the quality of life in not only coastal regions directly affected by the development, but nationwide. Immediate revenues from exploration can also help many coastal states weather the effects of the present recession and mortgage crisis without Federal aid. While some are suggesting limiting OCS Planning Area development to areas located more than one hundred miles offshore, it is important to point out that such limitations substantially curtail the benefits of OCS development. Not only are the costs of such deep and ultradeep water development often prohibitive, but production in such areas is more volatile as a result and Federal subsidies substantially diminish the potential public revenue gains from opening OCS Planning Areas. In summary, investment and development in OCS Planning Areas can increase economic growth with attendant effects on jobs, wages, taxes, and other public revenues, helping to both invigorate and stabilize economic growth while reducing oil price volatility. The resulting economic growth and public revenues are particularly attractive to local economies close to previously prohibited OCS planning areas like those off the coasts of California and Florida, which are experiencing the full force of recession and mortgage foreclosures. Jobs in these areas can be particularly powerful in resuscitating the economy and restoring economic growth. It makes no sense to consciously choose to forego such a substantial source of economic growth in a recession. In closing, a caveat. The present analysis is only meant to be a starting point for discussing the economic effects of unavailable OCS resources rather than an exact estimate of the economic effects of OCS Planning Area development and operation. Clearly there will be debate about many of the parameters used in the analysis. No amount of debate, however, should detract from the simple reality that reaffirming the OCS moratoria will leave valuable economic growth opportunities on the table precisely at a time when the country owes its citizens access to jobs and wages that can help them weather the current recession. V. Summary and Conclusions This paper estimates the net local and national economic effects that can be expected from opening OCS Planning Areas. In contrast to previous analyses of offshore development, this study estimates economic growth and output associated with the production phase, but also estimates the economic effects of the exploration and development phases as well. In truth, exploration and development involve a great deal of economic activity, suggesting that opening OCS Planning areas can increase economic growth, provide jobs, increase aggregate wages, and add to public revenues both today and for years in the future.

#### 85% of gas is off limits now

Luthi, 11/9/12 [Luthi is the president of the National Ocean Industry Association, representing more than 275 companies engaged in all aspects of the exploration and production of both traditional and renewable energy resources on the nation’s outer continental shelf, “Let's find agreement on new offshore access”, http://thehill.com/blogs/congress-blog/energy-a-environment/267089-lets-find-agreement-on-new-offshore-access]

Now that the election is (finally) behind us, President Obama has an opportunity to set the nation more forcefully on the road to energy independence. We’re well on our way thanks in large part to new techniques and technologies that have unlocked vast deposits of shale oil and natural gas. But we could and should be doing much more. Back in June, the Interior Department issued its five-year Outer Continental Shelf (OCS) oil and gas leasing plan. Despite high expectations encouraged by President Obama’s self-described “all-of-the-above” approach to the nation’s energy policy and the absence of long-standing Administrative and Congressional exploration bans that were lifted in 2008, theplan failed to open any new offshore areas to oil and natural gas exploration and production. The industry is still limited to the same 15 percent of the acreage on the OCS that’s been available for decades, leaving 85 percent untouchable. Don’t get me wrong. That 15 percent has been incredibly productive. In fact, the Gulf of Mexico region, which is the heart of America’s offshore oil and gas industry, has yielded six times more oil than 1980s resource estimates predicted it held. Production in the Gulf is finally ramping back up now that permitting rates are bouncing back from historic lows following the Macondo spill in 2010. We have every reason to believe that the areas where we can explore and produce will continue to support and create jobs and contribute to America’s energy security for years and even decades to come. For this reason, we will continue to advocate that the Obama Administration streamline and accelerate permitting on these acres of the OCS. We will also fight to put to rest once and for all the erroneous claims that the industry is “sitting on” offshore tracts, a red herring that surfaced again during the presidential debates. In fact, the success industry has crafted out of the 15 percent of the OCS currently open to exploration and production underscores why the Interior Department’s 5-Year Leasing Plan was so disappointing. Think of how much energy awaits us in the 85 percent of the offshore areas where we currently cannot explore or produce. One report by the Interstate Oil and Gas Compact Commission, conducted several years ago, estimates recoverable resources in “U.S. moratorium areas” of 19.29 billion barrels of oil and 83.5 trillion cubic feet of natural gas. If history is any guide, these estimates will prove to be very conservative. The frustrating truth is we have no idea how much is waiting for us there, because we’re not allowed to go look.

#### And, the plan creates certainty for offshore production—balances supply

Griles 3 [Lisa, Deputy Secretary, Department of the Interior, “Energy Production on Federal Lands,” Hearing before the Committee on Energy and Natural Resources, United States Senate]

Mr. GRILES. America’s public lands have an abundant opportunity for exploration and development of renewable and nonrenewable energy resources. Energy reserves contained on the Department of the Interior’s onshore and offshore Federal lands are very important to meeting our current and future estimates of what it is going to take to continue to supply America’s energy demand. Estimates suggest that these lands contain approximately 68 percent of the undiscovered U.S. oil resources and 74 percent of the undiscovered natural gas resources. President Bush has developed a national energy policy that laid out a comprehensive, long-term energy strategy for America’s future. That strategy recognizes we need to raise domestic production of energy, both renewable and nonrenewable, to meet our dependence for energy. For oil and gas, the United States uses about 7 billion barrels a year, of which about 4 billion are currently imported and 3 billion are domestically produced. The President proposed to open a small portion of the Arctic National Wildlife Refuge to environmentally responsible oil and gas exploration. Now there is a new and environmentally friendly technology, similar to directional drilling, with mobile platforms, self-containing drilling units. These things will allow producers to access large energy reserves with almost no footprint on the tundra. Each day, even since I have assumed this job, our ability to minimize our effect on the environment continues to improve to where it is almost nonexistent in such areas as even in Alaska. According to the latest oil and gas assessment, ANWR is the largest untapped source of domestic production available to us. The production for ANWR would equal about 60 years of imports from Iraq. The National Energy Policy also encourages development of cleaner, more diverse portfolios of domestic renewable energy sources. The renewable policy in areas cover geothermal, wind, solar, and biomass. And it urges research on hydrogen as an alternate energy source. To advance the National Energy Policy, the Bureau of Land Management and the DOE’s National Renewable Energy Lab last week announced the release of a renewable energy report. It identifies and evaluates renewable energy resources on public lands. Mr. Chairman, I would like to submit this for the record.\* This report, which has just come out, assess the potential for renewable energy on public lands. It is a very good report that we hope will allow for the private sector, after working with the various other agencies, to where can we best use renewable resource, and how do we take this assessment and put it into the land use planning that we are currently going, so that right-of-ways and understanding of what renewable resources can be done in the West can, in fact, have a better opportunity. The Department completed the first of an energy inventory this year. Now the EPCA report, which is laying here, also, Mr. Chairman, is an estimate of the undiscovered, technically recoverable oil and gas. Part one of that report covers five oil and gas basins. The second part of the report will be out later this year. Now this report, it is not—there are people who have different opinions of it. But the fact is we believe it will be a good guidance tool, as we look at where the oil and gas potential is and where we need to do land use planning. And as we update these land use plannings and do our EISs, that will help guide further the private sector, the public sector, and all stakeholders on how we can better do land use planning and develop oil and gas in a sound fashion. Also, I have laying here in front of me the two EISs that have been done on the two major coal methane basins in the United States, San Juan Basis and the Powder River Basin. Completing these reports, which are in draft, will increase and offer the opportunity for production of natural gas with coal bed methane. Now these reports are in draft and, once completed, will authorize and allow for additional exploration and development. It has taken 2 years to get these in place. It has taken 2 years to get some of these in place. This planning process that Congress has initiated under FLPMA and other statutes allows for a deliberative, conscious understanding of what the impacts are. We believe that when these are finalized, that is in fact what will occur. One of the areas which we believe that the Department of the Interior and the Bureau of Land Management is and is going to engage in is coordination with landowners. Mr. Chairman, the private sector in the oil and gas industry must be good neighbors with the ranchers in the West. The BLM is going to be addressing the issues of bonding requirements that will assure that landowners have their surface rights and their values protected. BLM is working to make the consultation process with the landowners, with the States and local governments and other Federal agencies more efficient and meaningful. But we must assure that the surface owners are protected and the values of their ranches are in fact assured. And by being good neighbors, we can do that. In the BLM land use planning process, we have priorities, ten current resource management planning areas that contain the major oil and gas reserves that are reported out in the EPCA study. Once this process is completed, then we can move forward with consideration of development of the natural gas. We are also working with the Western Governors’ Association and the Western Utilities Group. The purpose is to identify and designate right-of-way corridors on public lands. We would like to do it now as to where right-of-way corridors make sense and put those in our land use planning processes, so that when the need is truly identified, utilities, energy companies, and the public will know where they are Instead of taking two years to amend a land use plan, hopefully this will expedite and have future opportunity so that when the need is there, we can go ahead and make that investment through the private sector. It should speed up the process of right-of-way permits for both pipelines and electric transmission. Now let me switch to the offshore, the Outer Continental Shelf. It is a huge contributor to our Nation’s energy and economic security. The CHAIRMAN. Mr. Secretary, everything you have talked about so far is onshore. Mr. GRILES. That is correct. The CHAIRMAN. You now will speak to offshore. Mr. GRILES. Yes, sir, I will. Now we are keeping on schedule the holding lease sales in the areas that are available for leasing. In the past year, scheduled sales in several areas were either delayed, canceled, or put under moratoria, even though they were in the 5-year plan. It undermined certainty. It made investing, particularly in the Gulf, more risky. We have approved a 5-year oil and gas leasing program in July 2002 that calls for 20 new lease sales in the Gulf of Mexico and several other areas of the offshore, specifically in Alaska by 2007. Now our estimates indicate that these areas contain resources up to 22 billion barrels of oil and 61 trillion cubic feet of natural gas. We are also acting to raise energy production from these offshore areas by providing royalty relief on the OCS leases for new deep wells that are drilled in shallow water. These are at depths that heretofore were very and are very costly to produce from and costly to drill to. We need to encourage that exploration. These deep wells, which are greater than 15,000 feet in depth, are expected to access between 5 to 20 trillion cubic feet of natural gas and can be developed quickly due to existing infrastructure and the shallow water. We have also issued a final rule in July 2002 that allows companies to apply for a lease extension, giving them more time to analyze complex geological data that underlies salt domes. That is, where geologically salt overlays the geologically clay. And you try to do seismic, and the seismic just gets distorted. So we have extended the lease terms, so that hopefully those companies can figure out where and where to best drill. Vast resources of oil and natural gas lie, we hope, beneath these sheets of salt in the OCS in the Gulf of Mexico. But it is very difficult to get clear seismic images. We are also working to create a process of reviewing and permitting alternative energy sources on the OCS lands. We have sent legislation to Congress that would give the Minerals Management Service of the Department of the Interior clear authority to lease parts of the OCS for renewable energy. The renewables could be wind, wave, or solar energy, and related projects that are auxiliary to oil and gas development, such as offshore staging facilities and emergency medical facilities. We need this authority in order to be able to truly give the private sector what are the rules to play from and buy, so they can have certainty about where to go.

#### And, restrictions key – alters market dynamics

Medlock, 8 [Medlock is a fellow in Energy Studies at Rice University's James A Baker III Institute for Public Policy and an adjunct assistant professor in the [Economics Department](http://www.chron.com/?controllerName=search&action=search&channel=opinion%2Foutlook&search=1&inlineLink=1&query=%22Economics+Department%22) at Rice, “Open outer continental shelf”, http://www.chron.com/opinion/outlook/article/Open-outer-continental-shelf-1597898.php]

A confluence of factors is responsible for the recent price run-up at the pump. One important factor behind the strength of oil prices is the expectation of inadequate oil supply in the future. This has led to a debate regarding the removal of drilling access restrictions in the U.S. Outer Continental Shelf (OCS). According to the Department of Interior's Minerals Management Service (MMS), the OCS in the Lower 48 states currently under moratorium holds 19 billion barrels of technically recoverable oil. Some analysts claim that opening the OCS will not matter that much, as the quantity of oil is only about two years of U.S. consumption. But a more appropriate way to look at the issue is this: If the OCS could provide additional production of 1 million barrels per day of oil, our import dependence on Persian Gulf crude oil would be reduced by about 40 percent. Moreover, at 1 million barrels per day, the currently blocked OCS resource would last about 50 years. Of course, opening the OCS will not bring immediate supplies because it would take time to organize the lease sales and then develop the supply delivery infrastructure. However, as development progressed, the expected growth in supply would have an effect on market sentiment and eventually prices. Thus, opening the OCS should be viewed as a relevant part of a larger strategy to help ease prices over time because an increase in activity in the OCS would generally improve expectations about future oil supplies. Lifting the current moratorium in the OCS would also provide almost 80 trillion cubic feet of technically recoverable natural gas that is currently off-limits. A recent study by the Baker Institute indicates that removing current restrictions on resource development in the OCS would reduce future liquefied natural gas import dependence of the United States and lessen the influence of any future gas producers' cartel.

#### And, that sustains low prices and ensures adequate supply

Hastings, 12 [House Representative Doc, Republican Washington, President Obama's offshore drilling plan must be replaced, http://thehill.com/blogs/congress-blog/energy-a-environment/239529-president-obamas-offshore-drilling-plan-must-be-replaced]

Though President Obama uses lofty rhetoric to claim support for American oil and natural gas production, the administration chose to bury the announcement of this plan under mountains of news coverage. It’s no surprise that during an election year the president doesn’t want to hype a plan that represents a giant step backwards for American energy production and keeps 85 percent of our offshore areas off-limits. Fortunately, Congress now has the responsibility to act and make clear that the president’s plan is inadequate to meet the United States’ energy needs. Under current law, the president must submit the five-year plan to Congress for a mandatory 60-day review before it goes into effect. While in the past, this 60-day review has been treated as just a formality, it is an opportunity to reject the president’s plan and offer a better alternative for job creation and energy production. H.R. 6082, the Congressional Replacement of President Obama’s Energy-Restricting and Job-Limiting Offshore Drilling Plan, would replace President Obama’s plan with an environmentally responsible, robust plan that supports new offshore drilling. This plan passed out of the House Natural Resources Committee with bipartisan support and will be considered by the full House this week. It sets up a clear choice between the president’s drill-nowhere-new plan and the Congressional replacement plan to responsibly expand offshore American energy production. President Obama’s plan doesn’t open one new area for leasing and energy production. The Atlantic Coast, the Pacific Coast and most of the water off Alaska are all placed off-limits. This is especially frustrating for Virginians who had a lease sale scheduled for 2011, only to have it canceled by President Obama. The president added further insult to injury by not including the Virginia lease sale in his final plan, meaning the earliest it could happen is late 2017. The president’s plan only offers 15 lease sales limited to the Gulf of Mexico and, very late in the plan, small parts of Alaska. It doesn’t open one new area for leasing and energy production. According to the non-partisan Congressional Research Service, President Obama’s 15 lease sales represent the lowest number ever included in an offshore leasing plan. President Obama rates worse than even Jimmy Carter. Thanks to President Obama, it’s as if the bipartisan steps to lift the drilling moratoria in 2008 never happened. Crippling $4 gasoline prices sparked Americans’ outrage and pressured the Democrat-controlled Congress to allow legislation to pass opening up new offshore areas to drilling. Unfortunately, four years later, American families and small businesses are experiencing the pain of higher gasoline prices and yet no progress has been made to expand production of our offshore resources. The Congressional moratorium on drilling has simply been replaced by the “Obama moratorium” on drilling. Gasoline prices were $1.89 when President Obama took office, and prices today are nearly double. Americans will continue to face volatile price spikes as long as we continue to keep the United States’ energy resources under lock-and-key. In stark contrast to the president, the Congressional replacement plan includes 29 lease sales and opens new areas previously under moratoria. It’s a targeted effort towards those areas where we know we have the most oil and natural gas resources – like the mid-Atlantic, the Southern California Coast and Alaska. This is a drill smart plan that would create thousands of new American jobs, help lower prices at the pump and strengthen our national and economic security. Congress has a choice – to either support the president’s plan that re-imposes the drilling moratorium and places the vast majority of offshore areas off-limits, or support using American energy to create American jobs and strengthen America’s economy.

#### Only offshore development can keep domestic prices down

Pirog, 12 [Robert Pirog Specialist in Energy Economics CRS, http://assets.opencrs.com/rpts/R40645\_20120210.pdf]

Natural gas markets differ from the oil market in that they are not global, but regional. As shown in Table 6, above, virtually all U.S. natural gas consumption comes from U.S. or Canadian sources. The only link between regional natural gas markets is through LNG, but the rapidly growing market for LNG predicted earlier in this decade has failed to materialize. LNG is still largely characterized by long-term, two-party supply and purchase agreements. In the North American market, LNG plays the role of making up marginal short-falls in the demand and supply balance. As production from domestic onshore shale gas deposits increases, the role of LNG in the U.S. market will likely be small. In this regional market structure, the development of new, offshore U.S. supplies could have a significant impact on the domestic price of natural gas, as well as contributing to U.S. energy independence of this fuel. Although the price of natural gas has not shown the same degree of volatility as oil, the United States has been among the highest-priced regions in the world. High prices have caused residential consumers to allocate a greater portion of their budgets to home heating expenses. Industrial users either lose sales to overseas competitors, or cease U.S. production when domestic natural gas prices rise too much beyond those observed in other regions of the world. The development of offshore natural gas resources is likely to further retard the development of a growing LNG system in the United States. Terminals for the re-gasification of LNG have proven to be difficult to site and permit, and expensive to build. If domestic natural gas resources, close to existing collection and distribution systems, at least in the Gulf of Mexico, could be developed, the LNG terminals might prove to be redundant, depending on the volumes of natural gas that ultimately might be recovered. Offshore natural gas development, though commonly associated with offshore oil production, will likely be less competitive in a market environment dominated by onshore shale gas development.

#### Nearly 100 new projects are capable of development

Paul Hillegeist et al (President and COO at Quest Offshore Resources, Inc, Sean Shafer, Project Director, Andrew Jackson, Project Manager, Leslie Cook , Senior Research Consultant) December 2011 “The State of the Offshore U.S. Oil and Gas Industry” http://energytomorrow.org/images/uploads/Quest\_2011\_December\_29\_Final.pdf

If drilling permits going forward were to be issued at pre‐moratorium rates, the number of shallow water projects delayed could be significantly reduced from 85 under the current path to 37 over the 2012 to 2015 period, and from 48 to 9 for the deepwater. The increased number of projects would increase investment in the Gulf of Mexico offshore oil and gas industry by over $15.6 billion dollars from 2012‐2015. This additional investment would increase average annual U.S. employment between 17,000 and 49,000 thousand jobs per year over that time period. Offshore oil production would be higher over the next decade, for example, by 2017 offshore oil production would rise by approximately 13 percent relative to its current projected path. A regulatory environment that eliminates unnecessary permitting delays and maintains competitiveness with development opportunities in other regions of the world would provide a first step to revitalizing the offshore oil and gas industry. Additional access to offshore areas currently off‐limits remains a key missing component of U.S. energy policy, and would provide substantial additional gains to the nation in terms of energy security, employment and government revenue.

#### OCS doubles our capacity

Baker Institute, ‘8 (Baker Institute for Public Policy, Rice University, Baker Institute Policy Report, January 2008, “Natural Gas in North America: Markets and Security,” http://connection.ebscohost.com/c/articles/30064519/study-lift-u-s-drilling-restrictions-avoid-international-lng-cartel)//CC

As might be expected, the lower requirements for LNG under this scenario stem from larger, lowcost U.S. Lower 48 natural gas production. Modeling predicts that lifting access restrictions would lead to an increase overall in Lower 48 production of about 1.5 tcf in 2015 (or a 7.5 percent increase), increasing to 3.1 tcf greater production (or a 10.1 percent increase) in every year from 2015 through 2030. More specifically, OCS production would total 5.0 tcf in 2015 and 6.1 tcf in 2025 as compared to only 3.5 tcf in 2015 and 3.9 tcf in 2025 if the restrictions remain in place. Lifting restrictions in the Rocky Mountains adds another 0.10 tcf by 2015 and 0.93 tcf by 2025.

#### Otherwise, restrictions crush predictability and timing of projects

Curry L. Hagerty (Specialist in Energy and Natural Resources Policy at the Congressional Research Service) June 15, 2010 “Outer Continental Shelf Moratoria on Oil and Gas Development” http://crs.ncseonline.org/nle/crsreports/10Jul/R41132.pdf

One legacy of congressional moratoria is their impact on the timing of possible OCS development. From a developer’s point of view, predictability in the pace, timing, and sequence of OCS development projects is key to strategic business decisions. From a regulator’s standpoint, agency discretion for OCS development is tied to program planning horizons set by statutory or regulatory timetables. Features of the annual congressional moratoria varied from year to year, and from region to region, as reflected in Table 1, and the resultant uncertainty had a disruptive effect on the pace of OCS activity, which was viewed negatively by those in favor of OCS drilling. Among those opposed to OCS drilling, the disruptive effect was considered a positive outcome.23 Changes to the specific provisions of annual moratoria measures created tensions due to the unpredictability of the bans on leasing activities, timeframes, and locations.24 It was not uncommon for developers to engage in litigation against the federal government and to claim damages related to reliance on leases and federal OCS policies that were disrupted by the annual congressional moratoria.25 Although observers agreed that appropriations measures were out of sync with the timetable used to coordinate federal OCS planning functions, proponents of annual congressional moratoria provisions countered that restrictions were defensible in the absence of more permanent alternatives for similar leasing prohibitions

## 2AC

### HELIUM

#### Semiconductors solve war

**DS, 5** (Defense Science Board Task Force, “Defense Science Board Task Force On HIGH PERFORMANCE MICROCHIP SUPPLY,” February, http://www.acq.osd.mil/dsb/reports/ADA435563.pdf)

Defense systems, by the nature of their functions and use environment, require technologies for which there is no wide commercial demand. The most widely known of these “special” technologies is that of **radiation-hardening** of **circuits** to **allow** their **operation and survival through a nuclear event**. Similar unique technologies include low-power and countertamper techniques. Research and development for these special technologies is supported almost entirely by DOD through Defense Threat Reduction Agency (DTRA), NSA, and similar mission agencies. Although commercial processes are evolving coincidentally toward satisfying some DOD special needs, such as radiation tolerance, there remains an irreducible need for special fabrication. Maintaining viable supply sources for microelectronics parts incorporating DOD-unique technologies is part of the trusted supply problem. Commercial facilities lack the unique processes required to meet DOD-unique needs.

#### Super-quakes

**Ratcliffe 92** (David T., University of Oregon, “Nuclear Bomb Tests and their Relationship to Earthquakes Planetwide”, Planetwork Conference, http://www.ratical.org/radiation/inetSeries/testsNquakes.html)

Although the quake provoked renewed calls for a halt to plans for storing radioactive materials in such an unstable area, the larger questions have still not been raised in the United States: Do bomb tests actually cause earthquakes? Do nuclear tests make the planet more prone to geologic disruption? . . . Whiteford studied all earthquakes this century of more than 5.8 on the Richter scale. "Below that intensity," he explained, "some earthquakes would have passed unrecorded in the earlier part of the century when measuring devices were less sensitive and less ubiquitous. But for bigger quakes the records are detailed and complete for the entire planet." So Whiteford was able to make a simple comparison of the earthquake rate in the first half of the century, before nuclear testing, and the rate for 1950 to 1988. In the fifty years before testing, large earthquakes of more than 5.8 occurred at an average rate of 68 per year. With the advent of testing the rate rose "suddenly and dramatically" to an average of 127 a year. The earthquake rate has almost doubled. To this day the U.S. military attributes the increase to "coincidence." . . . . . . Who will the world hold responsible if suddenly an unprecedented series of violent earthquakes and volcanoes shake the earth? Will nuclear testers be able to assure the world they were not responsible? We are witnessing boys in men's bodies being enabled to play with toys UNIMAGINABLY dangerous and toxic. If we don't collectively--AND SOON--succeed in redirecting the brilliance of these people into positive, life-affirming and life-enhancing endeavors, we will surely witness the evolutionary progress of life on Mother Earth over the past 25,000 years pushed over the edge into the abyss of non-being for many, many millennia to come.

#### Core heating

**Chalko 3** (Tom J., PhD, Prof Geophysics, Mt Best, Australia, Scientific Engineering Research, 3-3, http://sci-e-research.com/neutron\_bomb.html

Consequences of using modern nuclear weapons can be far more serious than previously imagined. These consequences relate to the fact that most of the heat generated in the planetary interior is a result of nuclear decay. Over the last few decades, all superpowers have been developing so-called "neutron bombs". These bombs are designed to emit intensive neutron radiation while creating relatively little local mechanical damage. Military are very keen to use neutron bombs in combat, because lethal neutron radiation can peneterate even the largest and deepest bunkers. However, the military seem to ignore the fact that a neutron radiation is capable to reach significant depths in the planetary interior. In the process of passing through the planet and losing its intensity, a neutron beam stimulates nuclei of radioactive isotopes naturally present inside the planet to disintegrate. This disintegration in turn, generates more neutrons and other radiation. The entire process causes increased nuclear heat generation in the planetary interior, far greater than the initial energy of the bomb. It typically takes many days or even weeks for this extra heat to conduct/convect to the surface of the planet and cause increased seismic/volcanic activity. Due to this variable delay, nuclear tests are not currently associated with seismic/volcanic activity, simply because it is believed that there is no theoretical basis for such an association. Perhaps you heard that after every major series of nuclear test there is always a period of increased seismic activity in some part of the world. This observable fact CANNOT be explained by direct energy of the explosion. The mechanism of neutron radiation accelerating decay of radioactive isotopes in the planetary interior, however, is a VERY PLAUSIBLE and realistic explanation. The process of accelerating volcanic activity is nuclear in essence. Accelerated decay of unstable radioactive isotopes already present in the planetary interior provides the necessary energy. The TRUE danger of modern nuclear weaponry is that their neutron radiation is capable to induce global overheating of the planetary interior, global volcanic activity and, in extreme circumstances, may even cause the entire planet to explode.

#### Shortages coming now – natural gas key

Pugh, 3/2/13 [Editor's note: Moses Chan, Evan Pugh professor of physics at Penn State University, served on the National Research Council committee that wrote the report, "[Selling the Nation's Helium Reserve](http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=3ca0ed42-81af-41a2-b2f2-77f53f9abaf6)." Jim Lancaster, director of the National Research Council's Board on Physics and Astronomy, directed the study, <http://www.cnn.com/2013/03/02/opinion/chan-lancaster-helium/index.html>]

(CNN) -- If you've thrown a birthday party recently, you might have personally experienced the shortages or [price hikes intermittently hitting the helium market](http://www.cnn.com/2012/11/29/business/global-helium-shortage/index.html).¶ Unfortunately, balloon customers are not the only ones being affected. Many helium users, from scientists to manufacturers in a number of industries, have experienced the negative impact of helium shortages and rising prices. If steps aren't taken to develop and put into place a long-term strategy for managing this valuable and non-renewable resource, things can get worse.¶ Everyone has benefited, to some degree, from research made possible by liquid helium. Cell phones, iPads and laptops are possible because of experiments enabled by liquid helium. In the medical world, magnetic resonance imaging (MRI) is but one example of a host of diagnostic and treatment tools that exist only as a result of groundbreaking experiments carried out by using helium. In fact, the strong and extremely stable magnetic field that MRI devices require to work is accomplished by immersing powerful superconducting magnets inside liquid helium. Manufacturers of fiber optics cable and semiconductors used in electronic components rely on helium. And these are just a few examples of the importance of helium.¶ Those who are particularly hard hit are members of the scientific community. An interruption in helium supply can cause weeks or even months of work to become useless. For many of these researchers, helium costs are a significant fraction of their operating budgets. The large increases in helium prices that they have experienced over the last few years have placed them in a tight financial bind.¶ [Opinion: Don't deflate the party](http://www.cnn.com/2013/03/02/opinion/flynn-balloon-helium/index.html)¶ So, is there anything that can be done?¶ One of the main causes of the current shortage is the nature of the [helium market](http://www.cryogas-digital.com/cryogas/201210c?sub_id=AxF6gu0oilRn&folio=3#pg5) itself. Helium, unlike most other gases, is a minor byproduct in the production of natural gas. Those fissures and crevices that have trapped natural gas below the Earth's surface are also capable of trapping helium, although typically in small amounts. It takes a certain minimum level of helium concentration to make it economically viable to separate out the helium from the natural gas.¶ As a consequence, out of the thousands of sources of natural gas that exist, only 14 are being processed for their helium content. And when more than a few of those helium sources are shut down for maintenance and repair, as they have been over the last few months, helium shortages can occur.

#### Nothing else solves but the aff

EIA, 06 [Energy Information Administration, Natural Gas Processing: The Crucial Link Between Natural Gas Production and Its Transportation to Market, <http://www.eia.gov/pub/oil_gas/natural_gas/feature_articles/2006/ngprocess/ngprocess.pdf>]

The world’s supply of helium comes exclusively from natural gas production. The single largest source of helium is the United States, which produces about 80 percent of the annual world production of 3.0 billion cubic feet (Bcf). In 2003, U.S. production of helium was 2.4 Bcf, about two-thirds of which came from the Hugoton Basin in north Texas, Oklahoma, and Kansas (Figure 2). The rest mostly comes from the LaBarge field located in the Green River Basin in western Wyoming, with small amounts also produced in Utah and Colorado. According to the National Research Council, the consumption of helium in the United States doubled between 1985 and 1996, although its use has leveled off in recent years.

### PRICES

#### California key to US and global econ

**Navarro, ‘8** Professor of Economics and Public Policy at the Paul Merage School of Business, University of California, Irvine and holds a Ph.D. in Economics from Harvard University (Peter Navarro, SFGate, 15 August 2008, “California nightmare for the global economy?” http://www.sfgate.com/opinion/article/California-nightmare-for-the-global-economy-3273234.php)//CC

Will the California budget crisis tip the United States into recession? The California economy is certainly large enough to inflict such damage. It's the seventh-largest economy in the world and home to close to 38 million Americans. California's budget deficit is by any reasonable measure enormous. This budget deficit is estimated at $17.2 billion and represents more than 17 percent of the state's general fund expenditures (about $101 billion). In contrast, New York, which faces the second-worst budget gap in the nation for fiscal year 2009, has a gap of about $5 billion, which represents less than 10 percent of its budget. In closing its past budgetary gaps, California has acted more like the federal government rather than merely one of 50 states. Indeed, unlike the federal government (or sovereign nations), each state is required to balance its budget each year; and no state, at least in principle, has the authority to engage in the kind of discretionary deficit spending both the federal government and nations around the world routinely use to stimulate their economies. In the past, a profligate California has gotten around this balanced-budget requirement by using a technique that effectively allows the Golden State to administer its own fiscal stimulus. In particular, California - under both Democratic and Republican governors - has simply issued new bonds every time that it has spent far beyond its means. California's problem this time, however, is that its deficit is so big, its balance sheet is so bad, and world credit markets are so tight that issuing new bonds alone is no longer a viable option. Instead, California's politicians are inexorably being forced toward a solution that will prominently feature both a large tax increase and significant spending cuts. Indeed, this is not a partisan matter of choosing one's poison. The budget deficit is so large that it cannot be eliminated without raising taxes, anathema to the state's Republicans, and spending cuts, equally unpalatable to California Democrats. Of course, the faster the state Legislature accepts this harsh reality, the faster the deadlock can be broken. Viewed from a macroeconomic perspective, there is an even harsher reality. Increased taxes and reduced spending will send a very nasty contractionary shock through a California economy that is already reeling from a housing market meltdown and punishing gas prices. Should Gov. Arnold Schwarzenegger's budgetary medicine - including firing many state employees - trigger a recession, this may well serve as a tipping point for a national recession and, in the worst case scenario, even a global recession. In considering these dangers, it is worth noting that California provides close to 13 percent of America's real GDP growth. In contrast, the second-largest contributor to U.S. gross domestic product is Texas, and it provides only half that stimulus. It also worth noting that California is an important destination for both U.S. manufactured goods and world imports, particularly from Asia. Already, California's unemployment rate is more than 6.8 percent and well above the national average of 5.7 percent. At least some economists believe California may already be experiencing negative growth. The economy is likely to get a lot worse before its gets better. If there is any one civics lesson to be learned from this fine mess, it is that the state's politicians must learn to resist overspending in good times so that the state won't face bankruptcy when bad times hit. It should be equally clear that any damn fool can issue bonds to balance a budget. However, it takes real political courage and economic foresight to put a state budget on an even keel through fiscally conservative tax-and-spend policies. At this juncture, California is nowhere close to that - and the rest of the country, and perhaps the world, may soon pay the Golden State's piper.

#### Stimulus key

**Turner, 1/15** (Greg Turner, Tribune Business News, 15 January 2013, “Boston Fed chief: Economy needs stimulus,” proquest)//CC

Boston Fed chief Eric Rosengren painted a generally encouraging picture for the U.S. economy, noting "signs of underlying strength" despite lingering fiscal uncertainty as the calendar flipped to 2013. In a speech today in Providence, Rosengren said there has been improvement recently in the housing sector and in purchases of durable goods such as cars by consumers, thanks in part to the Fed. "The most interest-sensitive sectors have been responding to the monetary stimulus from the Fed, and this stimulus has provided a major source of strength for the economy last year. And it is likely to be a source of support in 2013," he said, according to his prepared remarks. Rosengren said it's "imperative" to continue so-called monetary accommodation because the nation still has an "unacceptably" high unemployment rate, while inflation is actually "undershooting" the Fed's 2 percent target. "Despite the rapid growth of the central bank's balance sheet in 2008, as well as the balance sheet's continued growth more recently, there has been no upward trend in inflation," said Rosengren, who regained a vote this year on the Fed's policy-setting committee. Rosengren, the president of the Federal Reserve Bank of Boston since 2007, said despite some sources of strength, the economy "has not snapped back more quickly" because of the recent fiscal cliff debate. Spending by cash-strapped state and local governments, which account for nearly 12 percent of economic activity, has been a drag on the economy, and the ongoing federal budget situation remains uncertain. "What does seem certain is that there will be cuts in government spending which, like higher taxes, will by the simple math of the GDP calculation slow down overall economic growth," he said. Rosengren warned of a "ripple effect" on the economy from potential cutbacks in federal grants to state and local governments. "Similarly, there is the issue of potential federal tax base broadening in order to reduce the federal budget deficit. This will have implications for business and family budgets," he said. "While the need for long-run sustainable fiscal policy is both clear and uncontroversial, I believe it is important to achieve sustainability in a way that does not risk the tentative economic improvements we have experienced to date." Despite the fiscal headwinds and weakness in Europe and Japan, Rosengren expects stronger growth in the second half of the year -- closer to 3 percent, compared to the average 2.2 percent annual rate since the recovery started in June 2009. Rosengren spoke this morning to the Greater Providence Chamber of Commerce. Rhode Island was among the hardest hit during the Great Recession and remains one of only two states with a jobless rate higher than 10 percent, as of November. "Persistently high unemployment rates have enormous personal and societal costs," he told Chamber members. "So in my view it is critical that public policy continues to actively support the economy's return to full employment."

#### Production shortfalls cause gas wars

**Ewall, ‘7** Mike Ewall. (Founder and Director of the Energy Justice Network). “Fact Sheet: Liquified Natural Gas (LNG)” November 2007.

FACT SHEET: Liquefied Natural Gas (LNG) Why LNG? 97% of natural gas consumed in the U.S. is from the U.S. and Canada, transported via pipeline. However, natural gas production has peaked in North America. Over time, we’re drilling more and more, but finding less and less. Between 1998 and 2007, natural gas prices more than tripled as imports from Canada slowed and domestic production failed to keep up with demand. To feed the increasing demand, more liquefied natural gas (LNG) terminals are being proposed, to increase imports from overseas. How Many? The U.S. has five existing LNG terminals – in Massachusetts, Maryland, Georgia, Louisiana and a newer one in the Gulf of Mexico. Approximately 60 additional LNG terminals have been proposed in North America (45 of which would be in the U.S.), though the Federal Energy Regulatory Commission (FERC) has estimated that only 10 LNG terminals are needed to meet short-term demand (of which two are in Mexico and two are in Eastern Canada). Thirty-one proposals have been approved by federal regulators already. Many are being fought by local opposition groups, but fighting them is difficult in the U.S. since local and state rights to block such projects are largely overridden by the Energy Policy Act of 2005. Peak Gas Globally, the demand for natural gas is increasing faster than it can be met. Global production is going to peak around 2020, meaning that supply will start to drop as demand continues to rise. This will drastically increase costs and will exacerbate global conflict, as China, India and other growing economies compete with the U.S. for the world’s limited gas supplies. China has plans for 8-9 LNG terminals. Bad Economics An LNG terminal will be an economic nightmare. Gas prices have already tripled since their historical average, which was fairly constant from 1976 through 1998. The push for LNG won’t help in the long-run, since these new terminals wouldn’t be built until around 2010. Companies will have to compete with India, China and the rest of the world for competitive contracts to secure LNG supplies (or the U.S. will use military force – also very expensive – to control the supply). Since natural gas production is going to peak globally around 2020, any new LNG import terminals will only have around 10 good years of economic life (propped up by excessive use of U.S. tax dollars to support military ventures to secure foreign sources of gas) before global prices start to skyrocket. LNG = More Wars Globalization of gas markets increases global conflict over gas supplies. Liquefied natural gas would be imported from Qatar, Algeria, Nigeria, Trinidad and Tobago, Australia and Indonesia. Iraq, Iran, central Asia and Russia are also have major gas resources and are likely to remain the focus of US military ventures. The U.S. has a long-standing history of conflict with oil-producing nations, to control oil supplies. Now, as natural gas markets globalize, our military conflicts are starting to be about natural gas as well.

#### Methane release inevitable – only extraction solves extinction

**Light 12** (Malcolm P.R. Light, Center for Polar Observation and Modeling, University of London, polar climate modeling and methane hydrates in the permafrost and submarine Arctic, “Charting Mankind’s Arctic Methane Emission Exponential Expressway to Total Extinction in the Next 50 Years,” Arctic News, August 10, 2012, http://arctic-news.blogspot.com/2012/08/charting-mankinds-expressway-to-extinction.html)

**If left alone** the subsea Arctic **methane hydrates will explosively destabilize on their own due to global warming and produce a massive** Arctic wide **methane “blowout” that will lead to** humanity’s **total extinction,** probably before the middle of this century (Light 2012 a, b and c). AIRS atmospheric methane concentration data between 2008 and 2012 (Yurganov 2012) show that the Arctic has already entered the early stages of a subsea methane “blowout” so we need to step in as soon as we can (e.g. 2015) to prevent it escalating any further (Light 2012c). The Arctic Natural Gas Extraction, Liquefaction & Sales (ANGELS) Proposal aims to reduce the threat of large, abrupt releases of methane in the Arctic, by extracting methane from Arctic methane hydrates prone to destabilization (Light, 2012c). After the Arctic sea ice has gone (probably around 2015) we propose that a large consortium of oil and gas companies/governments set up drilling platforms near the regions of maximum subsea methane emissions and drill a whole series of shallow directional production drill holes into the subsea subpermafrost “free methane” reservoir in order to depressurize it in a controlled manner (Light 2012c). This methane will be produced to the surface, liquefied, stored and transported on LNG tankers as a “green energy” source to all nations, totally replacing oil and coal as the major energy source (Light 2012c). The subsea methane reserves are so large that they can supply the entire earth’s energy needs for several hundreds of years (Light 2012c). By sufficiently depressurizing the Arctic subsea subpermafrost methane it will be possible to draw down Arctic ocean water through the old eruption sites and fracture systems and destabilize the methane hydrates in a controlled way thus shutting down the entire Arctic subsea methane blowout (Light 2012c).

### 2AC T – Restriction

#### We meet---OCS moratorium are restrictions

Hagerty 10 Curry, Specialist in Energy and Natural Resources Policy, “ Outer Continental Shelf Moratoria on Oil and Gas Development” CRS 2010

Outer Continental Shelf (OCS) moratoria provisions, enacted as part of the Department of the Interior appropriations over the last 26 years, prohibited federal spending on oil and gas development in certain locations and for certain activities. Annual **congressional moratoria restrictions** expired on September 30, 2008. While the expiration of this restriction does not make leasing and drilling permissible in all offshore areas, it is a significant development in conjunction with other changes in offshore leasing activity. Change in moratoria policy signals a shift in policy that may affect other OCS policies as well.

#### C/I – Restrictions make production more difficult or expensive

LVMI 96 Ludwig Von Mises Institute Original Book by Ludwig Von Mises, Austrian Economist in 1940, Evidence is cut from fourth edition copyright Bettina B. Greaves, “Human Action”<http://mises.org/pdf/humanaction/pdf/ha_29.pdf>

Restriction of production means that the government either forbids or makes more difficult or more expensive the production, transportation, or distribution of definite articles, or the application of definite modes of production, transportation, or distribution. The authority thus eliminates some of the means available for the satisfaction of human wants. The effect of its interference is that people are prevented from using their knowledge and abilities, their labor and their material means of production in the way in which they would earn the highest returns and satisfy their needs as much as possible. Such interference makes people poorer and less satisfied.

#### We meet – Land access limits production of natural gas – contextual evidence

**NaturalGas.org, no date** (NaturalGas.org, no date given [website registered 2004], “Natural Gas Supply,” http://www.naturalgas.org/business/analysis.asp)//CC

In addition to the short term impediments to increasing natural gas supply, there exist other more general barriers to the increased supply of natural gas in the United States. These include: Land Access - The U.S. government owns more than 29 percent of all the land in the country, and an estimated 40 percent of undiscovered natural gas exists on this land. In several areas, the government has restricted access to federal lands. 59 percent of undiscovered gas resources are on federal lands and offshore waters. Outside of the western Gulf of Mexico, production companies are prohibited access to virtually all federal lands offshore the Lower 48 states. About 9 percent of resource-bearing land in the Rockies is also off limits, and access to another 32 percent is significantly restricted. The National Petroleum Council in 1999 estimated that 213 Tcf of natural gas exists in areas under federal access restrictions. This restriction is the result of presidential and congressional leasing moratoria, and affects the amount of natural gas resources that may be extracted to increase supply.

#### Prefer –

#### Aff ground – only nat gas aff, 98% of reserves, biggest aff on the topic

#### Precision – resolutional synergy and energy-specific definitions key to predictability, education, and policymaking

#### Default to reasonability---prevents race to the bottom to arbitrarily limit out the aff and is preferable in restrictions context

MME 12 Mexican Ministry of Economy, “Other Appellant Submission of Mexico”, UNITED STATES – CERTAIN COUNTRY OF ORIGIN LABELLING REQUIREMENTS, March, http://www.economia.gob.mx/files/comunidad\_negocios/comercio\_exterior/solucion\_controversias/EDO.EDO/ORGANIZACION%20MUNDIAL%20DE%20COMERCIO/Participaci%C3%B3n%20de%20M%C3%A9xico%20como%20reclamante/EU\_COOL/20COMUNICACIONDELOTROAPELANTEDEMEXICO.pdf

52. The ordinary meaning of “restrictive” is “imposing restrictions”63 “[i]mplying, conveying or expressing restriction or limitation” and “[h]aving the nature or effect of a restriction; imposing a restriction.”64 The term “restriction” is defined as “the act or an instance of restricting; the state of being restricted”65 and as “[a] thing which restricts someone or something, a limitation on action, a limiting condition or regulation.”66 The term “restrict” is defined as “confine, bound, limit”.67 53. The meaning of “restriction” has been elaborated upon in jurisprudence concerning other WTO provisions. The term “restriction” should not be given a narrow meaning.68 A “disguised restriction” in the context of Article XX of the GATT 1994 has been interpreted to include “disguised discrimination in international trade”.69 In the context of Article XI and other non-discrimination provisions of the GATT 1994, it has been found that GATT disciplines on the use of restrictions are not meant to protect “trade flows”, but rather the “competitive opportunities of imported products”.70 In Argentina – Hides and Leather, the Panel found that in determining whether a measure makes effective a restriction in the context of Article I, II, III and XI:1 of the GATT 1994 the focus is on the competitive opportunities of imported products, not the trade effects. That panel considered that the complaining party claiming the existence of a restriction need not prove actual trade effects.

### 2AC Politics DA

#### Plan isn’t legislation

Janofsky 6 (Michael, Veteran Journalist, “Offshore Drilling Plan Widens Rifts Over Energy Policy,” New York Times, 4-9, http://www.nytimes.com/2006/04/09/washington/09drill.html)

A Bush administration proposal to open an energy-rich tract of the Gulf of Mexico to oil and gas drilling has touched off a tough fight in Congress, the latest demonstration of the political barriers to providing new energy supplies even at a time of high demand and record prices. The two-million-acre area, in deep waters 100 miles south of Pensacola, Fla., is estimated to contain nearly half a billion barrels of oil and three trillion cubic feet of natural gas, enough to run roughly a million vehicles and heat more than half a million homes for about 15 years. The site, Area 181, is the only major offshore leasing zone that the administration is offering for development. But lawmakers are divided over competing proposals to expand or to limit the drilling. The Senate Energy Committee and its chairman, Pete V. Domenici, Republican of New Mexico, are pushing for a wider drilling zone, while the two Florida senators and many from the state's delegation in the House are arguing for a smaller tract. Other lawmakers oppose any new drilling at all. The debate could go a long way toward defining how the nation satisfies its need for new energy and whether longstanding prohibitions against drilling in the Outer Continental Shelf, the deep waters well beyond state coastlines, will end. The fight, meanwhile, threatens to hold up the confirmation of President Bush's choice to lead the Interior Department, Gov. Dirk Kempthorne of Idaho. Mr. Kempthorne was nominated last month to replace Gale A. Norton, a proponent of the plan, who stepped down March 31. Like Ms. Norton, Mr. Kempthorne, a former senator, is a determined advocate of developing new supplies of energy through drilling. While environmental groups say that discouraging new drilling would spur development of alternative fuels, administration officials say that timely action in Area 181 and beyond could bring short-term relief to the nation's energy needs and, perhaps, lower fuel costs for consumers. "It's important to have expansions of available acres in the Gulf of Mexico as other areas are being tapped out," Ms. Norton said recently. She predicted that drilling in the offshore zone would lead to further development in parts of the Outer Continental Shelf that have been off-limits since the 1980's under a federal moratorium that Congress has renewed each year and that every president since then has supported. States are beginning to challenge the prohibitions. Legislatures in Georgia and Kansas recently passed resolutions urging the government to lift the bans. On Friday, Gov. Tim Kaine of Virginia, a Democrat, rejected language in a state energy bill that asked Congress to lift the drilling ban off Virginia's coast. But he did not close the door to a federal survey of natural gas deposits. Meanwhile, Representative Richard W. Pombo, Republican of California, the pro-development chairman of the House Resources Committee, plans to introduce a bill in June that would allow states to seek control of any energy exploration within 125 miles of their shorelines. Senators John W. Warner of Virginia, a Republican, and Mark Pryor of Arkansas, a Democrat, introduced a similar bill in the Senate last month. Currently, coastal states can offer drilling rights only in waters within a few miles of their own shores. Mr. Pombo and other lawmakers would also change the royalty distribution formula for drilling in Outer Continental Shelf waters so states would get a share of the royalties that now go entirely to the federal government. Senators from Alabama, Louisiana and Mississippi are co-sponsoring a bill that would create a 50-50 split. As exceptions to the federal ban, the western and central waters of the Gulf of Mexico produce nearly a third of the nation's oil and more than a fifth of its natural gas. But Area 181 has been protected because of its proximity to Florida and the opposition of Mr. Bush's brother, Gov. Jeb Bush. By its current boundaries, the pending lease area is a much smaller tract than the 5.9 million acres the Interior Department first considered leasing more than 20 years ago and the 3.6 million acres that the department proposed to lease in 2001. This year, two million acres of the original tract are proposed for lease as the only waters of the Outer Continental Shelf that the administration is making available for 2007-12. The proposal is an administrative action that does not require Congressional approval, but it is still subject to public comment before being made final. Unless Congress directs the administration to change course, the administration's final plan would lead to bidding on new leases in 2007.

#### Obama pushing cyber security – top priority

**Martinez, The Hill, 3-18-13**

(Jennifer, “Cyberattacks sound alarms as business, lawmakers scramble to bolster defenses,” 3-18-13, <http://thehill.com/blogs/hillicon-valley/technology/288643-cyberattacks-sound-alarms-dc-scrambles>)

President Obama planned to address cybersecurity in all of his meetings with the four congressional caucuses last week, highlighting how the issue has leapt to the top of his list. The president also met with a group of 13 CEOs in the Situation Room to discuss the threats companies are observing and how the government and private sector can work together to thwart them.

#### Plan popular

#### --- trumps ideology.

Barry Russell 12 is President of the Independent Petroleum Association of America, “Energy Must Transcend Politics”, 8-15-12, <http://energy.nationaljournal.com/2012/08/finding-the-sweet-spot-biparti.php#2238176>, Accessed date: 12-10-12 y2k

There have been glimpses of great leadership, examples when legislators have reached across the aisle to construct and support common-sense legislation that encourages American energy production. Recent legislation from Congress which would replace the Obama administration’s five-year offshore leasing plan and instead increase access America’s abundant offshore oil and natural gas is one example of such bipartisanship. The House passed legislation with support from 25 key Democrats. The support from Republicans and Democrats is obviously not equal, but this bipartisan legislative victory demonstrates a commitment by the House of Representatives to support the jobs, economic growth and national security over stubborn allegiance to political party. The same is happening on the Senate side. Democratic Senators Jim Webb (VA), Mark Warner (VA), and Mary Landrieu (LA) cosponsored the Senate’s legislation to expand offshore oil and natural gas production with Republican Senators Lisa Murkowski (AK), John Hoeven (ND), and Jim Inhofe (OK). Senator Manchin (WV) is another Democratic leader who consistently votes to promote responsible energy development.

#### ---- key to bipartisan bargain

Coral Davenport 12 is Energy and Environment Correspondent for National Journal. “How Obama and Congress Could Find Common Ground on Energy,” December 6, 2012, <http://www.nationaljournal.com/magazine/how-obama-and-congress-could-find-common-ground-on-energy-20121206>, Accessed date: 12-30-12 y2k

Meanwhile, the partisan impasse may be about to end. Quietly, lawmakers and lobbyists say they can envision a grand bargain on energy and climate change—cutting fossil- fuel use and investing in clean energy in exchange for new offshore drilling or approval of the controversial Keystone XL pipeline. The biggest if, and the heaviest lift, will be getting Congress to enact the policy that economists say would do the most to transform the nation’s energy economy: taxing or pricing fossil carbon pollution. A price on carbon, say economists across the ideological spectrum, will increase the price of fossil fuels and decisively drive the free market toward clean energy. Yet any lawmaker who supports the plan could be accused of supporting an energy tax. Still, a combination of events—including more droughts, floods, and extreme weather like superstorm Sandy—has increased the sense of urgency. The recent explosion in domestic oil and natural-gas production has helped to create jobs and prop up the recovery while bringing together oil companies and the Obama White House in alliances that could pave the way for new agreements on energy policy. And as Washington grapples with the deficit, many in the capital are more open to the carbon tax as a way to raise revenue.

#### --- olive branch

Russell **McLendon**, mother nature network, 5/27/**10**, “Offshore drilling: Low bills vs. big spills”, http://www.mnn.com/earth-matters/translating-uncle-sam/stories/offshore-drilling-low-bills-vs-big-spills, mnrs

That pressure reached a critical mass in March, when President Obama announced plans to end a three-decade ban onnew offshore drilling in U.S. waters. The move was widely seen as an olive branch to offshore-drilling advocates in Congress, offering a compromise that might win support for a climate-change bill. It paved the way for new drilling in the Gulf of Mexico as well as the first-ever oil rigs off the East Coast, and while it drew the ire of environmentalists, there was only scattered public criticism. Within a few weeks, though, the tides suddenly turned. An explosion aboard the Deepwater Horizon oil rig in the Gulf of Mexico killed 11 workers on April 20, and two days later — the 40th anniversary of Earth Day — the rig sank to the sea floor, starting what is now being called the worst oil spill in American history.

#### Winners win – Obama needs to crush GOP to spur momentum – political capital wont work

Matt Vespa (writer for NewsBusters) March 22, 2013 “CBS Political Director Says Obama Shouldn't Agitate GOP, But Said To 'Go For The Throat' Last January” <http://newsbusters.org/blogs/matt-vespa/2013/03/22/180-turn-cbs-political-director-says-obama-shouldnt-agitate-gop-said-go->

What's odd is that Dickerson wrote a piece on January 18, which said that Obama should 'declare war[3]' on Republicans in order to become the transformative political figure everyone on the left wants him to be. This could be seen as the beginning of the end of the vicious gloating liberals dished out to conservatives after Obama was re-elected, but it was nasty all the same.¶ Heck, even some Slate writers were telling their colleagues to cool it[4]. Is this a tale of two Dickersons?¶ On Jan. 18, Dickerson wrote (emphasis mine):¶ The challenge for President Obama's speech is the challenge of his second term: how to be great when the environment stinks. Enhancing the president's legacy requires something more than simply the clever application of predictable stratagems. Washington's partisan rancor, the size of the problems facing government, and the limited amount of time before Obama is a lame duck all point to a single conclusion: The president who came into office speaking in lofty terms about bipartisanship and cooperation can only cement his legacy if he destroys the GOP. If he wants to transform American politics, he must go for the throat.¶ […]¶ Obama's only remaining option is to pulverize. Whether he succeeds in passing legislation or not, given his ambitions, his goal should be to delegitimize his opponents. Through a series of clarifying fights over controversial issues, he can force Republicans to either side with their coalition's most extreme elements or cause a rift in the party that will leave it, at least temporarily, in disarray.¶ What happened in the interim? First, the president and the Democrats lost the sequester battle[5]. Second, polling shows Americans tend to support the substance [6]of Republican economic policies, even as the party label itself is, at present, not popular.¶ This, coupled with the hyperbolic scenarios related to the sequestration cuts, have allowed Republicans to highlight the real pork, such as the studying of duck genitalia[7], to slam the president lamenting over the closure of White House tours. Indeed, even self-described lefties are starting to lose confidence in Obama. In a recent Washington Post/ABC poll, the president saw liberals lose confidence [8]in him over handling the economy over Republicans by fourteen points! Women's support of his economic agenda slipped an equally bad twelve points since December.¶ Perhaps Dickerson was part of the liberal crowd that felt the president, fresh off his reelection, has a mandate, but was wholly illusory. ¶ Don't look for Dickerson's colleagues in the liberal media to examine this stunning reversal. Doing so would highlight that Obama fatigue is slowly but surely setting in, not just in Washington but in the hinterland. The president won a second term, but he lacks the political capital to set the agenda on his terms. He cannot negotiate from a position of strength because he has none. Dickerson now sees it, and surely others in the media do as well. The question is when will the media start to note openly that the emperor has no clothes.

### 2AC Immigration

#### Not top of the docket, won’t pass, and Obama’s not spending the PC

Hennessey 3-25-13 (Kathleen Hennessey, Obama tries to push stalled immigration talks forward, http://www.latimes.com/news/politics/la-pn-obama-stalled-immigration-talks-20130325,0,7503326.story)

In January, Obama threatened to send his own bill to Congress if the group did not produce a proposal “in a timely fashion.” His remarks Monday suggest the White House is willing to give the group more time to work before it takes that step.¶ “I expect the debate to begin next month. I want to sign that bill into law as soon as possible,” he said. “We know that real reform means continuing to strengthen our border security and holding employers accountable. … Let’s get this done.”¶ Obama’s time frame may be tough for senators to reach. U.S. Sen. Patrick J. Leahy (D-Vt.), chairman of the judiciary committee, already has cast doubt on the chances of getting a bill through his committee by the end of April. Even if the bill comes to the floor next month a vote would not necessarily follow quickly. Senate Majority Leader Harry Reid (D-Nev.) has said he plans to let senators debate the legislation at length, and there remains no clear path for the bill through the Republican-led House.¶ The senators remain deadlocked over several issues, including the details of a guest-worker program and how the legislation will implement and define security at the border.¶ Obama has largely steered clear of the talks, instead offering broad elements he wants to see included. The president on Monday used the platform to revive his call for a path to citizenship for illegal immigrants, the key requirement for any bill.

#### No issue spillover

Judson Berger, 3/4/13, Recurring budget crises could put squeeze on Obama's second-term priorities, www.foxnews.com/politics/2013/03/04/recurring-budget-crises-could-put-squeeze-on-obama-second-term-priorities/

¶ Rep. Luis Gutierrez, D-Ill., a vocal advocate for immigration reform, voiced confidence Monday that the administration and Congress could handle the busy agenda. ¶ "The spirit of bipartisan cooperation that is keeping the immigration issue moving forward has not been poisoned by the sequester and budget stalemate, so far," he said in a statement. "The two sets of issues seem to exist in parallel universes where I can disagree with my Republican colleagues strenuously on budget matters, but still work with them effectively to eventually reach an immigration compromise. ... I remain extremely optimistic that immigration reform is going to happen this year." ¶ Immigration reform efforts are still marching along despite the budget drama. Obama met last week on the issue with Sens. John McCain, R-Ariz., and Lindsey Graham, R-S.C., who both are part of a bipartisan group crafting legislation.

#### XO solves

Keegan Hamilton (writer for the Atlantic) 3/26, 2013 “How Obama Could (but Probably Won't) Stop Deporting Illegal Immigrants Today” http://www.theatlantic.com/politics/archive/2013/03/how-obama-could-but-probably-wont-stop-deporting-illegal-immigrants-today/274352/

If the current congressional push for immigration reform were to fail, however, a presidential pardon for undocumented immigrants with no criminal history might be Obama's last ditch alternative to prosecutorial discretion. Rather than scaling back on detentions, Obama could instantly--and permanently-- legalize millions of illegal immigrants. Beck, the Georgia law scholar, notes that the Constitution empowers the president to "grant reprieves and pardons for offences against the United States, except in cases of impeachment."¶ The question, he says, is "whether coming into the country in violation of the immigration laws or overstaying a visa could be deemed an 'offense against the United States.'" But the president has broad powers of pardon, and it seems that Obama could exercise those powers here. Beck cites United States v. Klein, an 1871 Supreme Court case that involved a presidential pardon issued during the Civil War to confederates who rejoined the union and took an oath of loyalty.

#### Border security kills

Fawn Johnson, 3/21/13, Border Triggers Could Sink Immigration Deal, www.nationaljournal.com/daily/border-triggers-could-sink-immigration-deal-20130321

Republicans' insistence that border-security benchmarks be met before legalizing 11-12 million illegal immigrants could sink an emerging compromise measure that is expected to be unveiled in a few weeks.¶ The “Gang of Eight” senators negotiating a sweeping immigration bill are on track to unveil draft legislation at the beginning of April, according to congressional aides. Similarly, a bipartisan group of House members is honing its own version. The cornerstone of both measures is a mass probationary legalization of noncriminal undocumented immigrants.¶ Legalization is a significant concession from Republicans, who are reluctant to give breaks to immigrants who violated the law. They acknowledge, however, that mass deportation is not possible and that millions of illegal residents are bad for national security.¶ Conservatives are worried that once a bill passes, legalization will take the pressure off immigration authorities to stop further illegal entry and to find and deport those who manage to make it in without authorization. To keep that from happening, the negotiators are discussing a variety of enforcement-related benchmarks, or “triggers,” that would need to be met before the population of undocumented immigrants can move toward citizenship.¶ But some lawmakers worry that forestalling citizenship in the name of border security may not be enough of an incentive for the authorities. After all, only half of legal immigrants in the country now go to the trouble of becoming U.S. citizens. Once the illegal population is given provisional legal status, they might not be clamoring as hard for government action that would allow them to become full-fledged citizens.¶ Rep. Raul Labrador, R-Idaho, a leading voice for tea-party conservatives on immigration, has suggested that even the probationary legalization of illegal immigrants should wait until some enforcement mechanisms are in place. “We have to have enforcement triggers happen before anyone receives any kind of legal status,” he said Wednesday. “Certain objective triggers that we can measure.”¶ Labrador is walking a tightrope between the tea-party House members who follow his lead on immigration and the immigrant-friendly lawmakers with whom he is trying to strike a deal. The two groups don’t speak the same language. For hardcore conservatives, only tough enforcement benchmarks could give them enough comfort to support the legislation. “We cannot simply legalize 12 million people and enforce the laws later,” Senate Judiciary Committee ranking Republican Chuck Grassley, R-Iowa, said Wednesday.¶ But Labrador’s suggestion is a deal-breaker for immigrant advocates and Democrats. “Whoever’s saying that, they’re trying to kill the bill before it even gets started,” said Alison Reardon, legislative consultant for the Service Employees International Union, which represents thousands of immigrant workers. “We should continue to work to secure our borders, but there’s no way to do that and wait for legalization. Border security is an ongoing thing.”¶ The Obama administration isn’t helping on this front, because it has been more aggressive than any previous administration in deporting and detaining illegal immigrants. Almost half of those in deportation proceedings have committed no other crimes.¶

#### PC not key

Amie Parnes and Justin Sink (writers for The Hill) 3/20, 2013 “Obama honeymoon may be over” http://thehill.com/homenews/administration/289179-obama-honeymoon-may-be-over

The White House disputes any notion that Obama has lost any political capital in recent weeks.¶ “The president set out an ambitious agenda and he’s doing big things that are not easy, from immigration to gun control,” the senior administration official said. “Those are policies you can’t rack up easily, and no one here is naive about that.”¶ The White House is aware that the clock is ticking to push its hefty agenda, but the official added, “The clock is not ticking because of president’s political capital. The clock is ticking because there’s a timetable in achieving all of this. [Lawmakers] are not going to sign on because the president’s popular.” ¶ And administration officials believe they still have the leverage.

#### Econ thumps

Xinhua News March 26, 2013 “Obama pushes Congress to put forward immigration bill next month” http://news.xinhuanet.com/english/world/2013-03/26/c\_124501794.htm

About 63 percent of Americans agree that the immigration system should deal with immigrants who are currently living in the country by allowing them a way to become citizens, according to a survey released last Thursday by the Public Religion Research and the Brookings Institution.¶ However, a bad news for supporters of immigration reform is that among the seven issues with political priority for the White House and Congress, immigration only ranked sixth, far behind economic issues.

#### **Floating city solves worker crisis – immigration regulations**

McKendrick, 2011 (Joe is a contributing editior and is an independent analyst who tracks the impact of information technology on management and markets. He is the author of the SOA Manifesto and has written for Forbes, ZDNet and Database Trends & Applications. He holds a degree from Temple University. smart planet, CBS Interactive has unveiled a new website dedicated to people who realize the need to make our world a better place to live, for all of us, and for generations to come. “Tech Skills shortage solution, set up workplace in international waters” <http://www.smartplanet.com/blog/business-brains/tech-skills-shortage-solution-set-up-workplace-in-international-waters/20333?tag=content;siu-container>)

The Silicon Valley tech scene is again one of the brightest stars in the US economy, but its growth is hitting a ceiling: there just aren’t enough visionary entrepreneurs, skilled engineers, developers, technicians and other professionals to sustain growth. Hampering the ability to attract global talent — which has fueled the growth of the US tech industry in the past — is a limit on the number of foreign entrepreneurs or workers that can enter and work within the country. Currently, work visas are capped at 140,000 people a year. With recent economic conditions, there has been considerable pressure on Congress to maintain restrictions on the inflow of foreign workers.

One entrepreneur, however, has come up with an interesting workaround to the challenge: anchor a large ship off the coast of San Fransisco, in international waters, and recruit professionals from other nations to work on board.

Blueseed, a startup incubator (and startup itself), proposes to set such a ship afloat as a “high-tech visa-free entrepreneurship and technology incubator on an ocean vessel in international waters.” The ship will be positioned as “a short ferry ride away from Silicon Valley so that great ideas and talent from around the world can live, work, and play while having convenient access to the San Francisco Bay Area.” International entrepreneurs and professionals would be able to use tourist or short-term business visas — which are easier to obtain the work visas — to take regular jaunts to the mainland.

### 2AC States CP

#### Perm do both – shields the link, federal government giving into states to avoid lawsuit

#### No solvency – USFG alone controls OCS

**US Chamber of Commerce, no date** (Institute for 21st Century Energy, Chamber of Commerce, no date given (website registered 2011), “Immediately Expand Domestic Oil and Gas Exploration and Production,” http://www.energyxxi.org/immediately-expand-domestic-oil-and-gas-exploration-and-production)//CC

States have authority over oil and natural gas production within state coastal waters, which are generally those areas within three nautical miles of the coast. By law, Texas and Florida are treated differently; the seaward boundary for Texas is 9 nautical miles, and the seaward boundary for Florida in the Gulf of Mexico is also 9 nautical miles. States retain all rights to revenues generated from oil and gas production in state waters, including royalties. Some coastal states have resisted new exploration and production in offshore areas of the federal OCS in part because the states’ share of revenues resulting from offshore production is generally far less than if the exploration and production were occurring on federal leases onshore. Anything beyond the state boundary is by law federal land. Oil and natural gas production in offshore federal land is regulated under the Outer Continental Shelf Lands Act.

#### 50-state fiat is a voter—

There’s no opportunity cost between federal and state action—kills rational decision-making which is a portable skill beyond debate. There’s no literature base for uniform fiat—allowing distortions of the literature that make it impossible for the aff to predict and research counterplans—kills adequate argument comparison. Counter-interp—they have to have a normative solvency advocate for the CP

#### Onshore production is barely any gas—also, the OCS is necessarily more than 3 miles off the coast, beyond state jurisdiction

**Cover, 8/13** (Matt Cover, CNS News, 13 August 2012, “Lifting Drilling Restrictions Could Increase US Reserves by 30 Percent, Study Finds,” http://cnsnews.com/news/article/lifting-drilling-restrictions-could-increase-us-reserves-30-percent-study-finds)//CC

The oil and gas reserves that are closed to production are divided into two general categories – onshore and offshore. About 60 billion barrels of oil and gas are located onshore, of which about 20 percent – 12 billion barrels – are currently off-limits. Of those 12 billion barrels, five percent are under national parks where drilling is legally prohibited and 15 percent are on other federal lands where government policy prohibits drilling. Most of the prohibited reserves lie in the OCS, the underwater region between three and 200 nautical miles from the U.S. coastline, which are currently off-limits due to federal policy. However, CBO and Interior estimate that due to current technological limitations, only **about 350 million barrels will actually be recovered** from this region over the next decade.

#### Status quo kills states solvency

Matt Willie (JD Candidate, J. Reuben Clark Law School, Brigham Young University) November 2011 “Hydraulic Fracturing and “Spotty” Regulation: Why the Federal Government Should Let States Control Unconventional Onshore Drilling” <http://lawreview.byu.edu/articles/1346430940_09.willie.fin.pdf>

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 “[t]he varying complexity and breadth of state oil and gas regulation suggests that some states are not adequately protecting underground sources of drinking water.”198 The flaw in such arguments, however, is that they 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”199 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.200 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.201 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.202 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 landowners203 and promotes “the state’s goals of preventing waste and conserving natural resources.”204 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.205 Not only do many energy-producing states operate under somewhat conflicting theories of oil and gas law,206 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.

#### Perm do both – shields the link to politics

Overby 3 – A. Brooke, Professor of Law, Tulane University School of Law, “Our New Commercial Law Federalism.” Temple University of the Commonwealth System of Higher Education Temple Law Review, Summer, 2003 76 Temp. L. Rev. 297 Lexis

We held in New York that Congress cannot compel the States to enact or enforce a federal regulatory program. Today we hold that Congress cannot circumvent that prohibition by conscripting the States' officers directly. The Federal Government may neither issue directives requiring the States to address particular problems, nor command the States' officers, or those of their political subdivisions, to administer or enforce a federal regulatory program. It matters not whether policymaking is involved, and no case-by-case weighing of the burdens or benefits is necessary; such commands are fundamentally incompatible with our constitutional system of dual sovereignty.n65 The concerns articulated in New York and echoed again in Printz addressed the erosion of the lines of political accountability that could result from federal commandeering.n66 Federal authority to compel implementation of a national legislative agenda through the state legislatures or officers would blur or launder the federal provenance of the legislation and shift political consequences and costs thereof to the state legislators. Left unchecked, Congress could foist upon the states **expensive or** unpopular programs yet shield itself from accountability to citizens**.** While drawing the line between constitutionally permissible optional implementation and impermissible mandatory implementation does not erase these concerns with accountability, it does ameliorate them slightly.

#### State funding relies on bonds – perceived as unreliable

Stevens 11 (Paul, PRESIDENT AND CEO OF INVESTMENT COMPANY INSTITUTE, “OVERSIGHT OF THE MUTUAL FUND INDUSTRY: ENSURING MARKET STABILITY

AND INVESTOR CONFIDENCE”, June 24, BEFORE THE SUBCOMMITTEE ON CAPITAL MARKETS AND GOVERNMENT SPONSORED ENTERPRISES COMMITTEE ON FINANCIAL SERVICES UNITED STATES HOUSE OF REPRESENTATIVES, http://financialservices.house.gov/uploadedfiles/062411stevens.pdf)¶ The tax-exempt municipal securities market provides an important mechanism for the almost 90,000 units of state and local government to access capital primarily for infrastructure needs including schools, streets and highways, bridges, hospitals, public housing, sewer and water systems, power utilities, and various public projects. 145 The tax treatment of municipal securities in Section 103 of the Internal Revenue Code, which states that the interest on municipal bonds is exempt from federal income tax, serves to bolster demand for municipal securities. For many of these small government units, the municipal securities markets are the only way in which they can truly raise needed funding for their operations. Funds are a critical part of this market. At the end of 2010, individual investors held 33 percent of the $2.9 trillion municipal securities market through funds and another 37 percent directly. 146¶ Funds provide an efficient and cost-effective means for individual investors to obtain municipal securities. With approximately 1.2 million active municipal bonds, 147 however, the municipal securities markets are complex. Investors will naturally gravitate toward issues for which they have ready access to the detailed, consistent, and timely disclosure necessary to informed investment decisions. Unfortunately, under the current municipal securities regulatory regime, disclosure too often is limited, non-standardized, and often stale. 148¶ For these reasons, we repeatedly have called for reform of the municipal securities disclosure regime. 149 ICI consistently has supported SEC efforts to enhance the disclosure of information regarding municipal securities by amending Rule 15c2-12 under the Securities Exchange Act of 1934, which establishes requirements on the initial disclosure, periodic disclosure, and secondary market reporting of municipal securities. 151 The Rule requires dealers and underwriters, through contract, to obtain issuer representations that certain disclosures may be made. Since adoption, time has shown that the attenuated nature of this disclosure system is extremely difficult to enforce. 152¶ A better disclosure regime should be devised for this important market. Municipal securities now trade on a nationwide scale; their trading volume has increased substantially; and the market is composed of many complex instruments. Individual investors increasingly must evaluate not only default risk, but also market price and the corresponding value of a bond. The credit environment for municipal securities has become, and likely will continue to be, more challenging in the coming years, primarily in small or unrated issues. ¶ Until 2008, the need for better disclosure was tempered by the fact that most municipal securities were insured. It was presumed that in the absence of publicly available information, a bond insurer had ready access to the municipal issuer’s most recent financial statements and had performed necessary due diligence. Now, however, a smaller segment of the municipal securities market has bond insurance because of the skepticism of investors about the ability of the insurance industry to conduct quality risk assessments following the 2008 financial crisis. Disclosure gaps have been compounded by the adoption of a single global rating scale, which rates corporate and municipal securities on the same scale, and reduces the granularity of available information on municipal securities. Headline risk and the cyclical nature of retail trading further exacerbate the problem. Industry initiatives have made some headway for disclosure improvements in certain categories of municipal securities but these too are limited and voluntary. 153

#### New spending wrecks the California economy

Krol 12 Robert, Professor of economics at California State University Northridge and author of a forthcoming Cato Journal paper on state budget institutions, 2012, “California Needs a Spending Limit”, http://www.cato.org/publications/commentary/california-needs-spending-limit

California's budget is once again in the red. The governor signed a balanced budget in August of last year, but before the ink was dry, a slowing economy, the real estate bust and a spate of unplanned spending resulted in a significant budget crunch. The Legislative Analyst's Office now projects a deficit of about $10 billion over the next 18 months, and Gov. Schwarzenegger says the shortfall may be as high as $14 billion. To be sure, the slowing economy has reduced revenues, but excessive spending remains the root cause ofCalifornia's persistent financial troubles. The governor plans to declare a "fiscal emergency," requiring legislators in Sacramento to correct the deficit. The resulting legislation will likely include spending cuts, fee increases and borrowing. Details aside, Schwarzenegger must insist that any legislation contain an enforceable framework to help prevent future fiscal crises and allow for a voter referendum on a constitutional spending limit. The time is right**.** California's taxes are already high, so the solution is to control spending with a constitutional constraint limiting expenditure growth to inflation plus population growth. Schwarzenegger proposed a spending limit in 2005, but it was poorly designed, and voters had little incentive to support it. Now, the fiscal crunch is much worse. A new proposal should require legislators to get voter approval for any expenditures above the limit, and include a component allowing taxpayers to decide for themselves whether they want higher spending or a tax refund. Such a law would lessen the severity of budget shortfalls in economic downturns. Recent experience provides an example of how this would work. The state's revenues began to rise in the 2004-05 fiscal year. Since that time, pegging spending increases to inflation and population growth would have allowed spending to grow by 15 percent. Instead, expenditures increased by more than twice that much. If spending growth had been limited to 15 percent since 2004-05, we'd be facing a $7 billion surplus rather than a $2 billion deficit for the current fiscal year. Thirty states already have some form of a tax or government spending limit. Most of the limits link the growth of state expenditures to growth in personal income. California overwhelmingly passed a population growth plus inflation spending constraint in 1979, but it was amended by voters in 1990 to limit expenditure growth to increases in population plus growth in personal income. This more generous limit has never effectively constrained state spending. Linking spending growth to increases in population plus inflation is a more effective way to establish fiscal discipline in Sacramento. We know from other states that tax and spending limits can constrain the expansion of government. Research shows that the most effective limits are constitutional, written by voters and limit increases in spending rather than revenues. As an added bonus, financial markets reward states with expenditure limits by demanding lower interest rates on state borrowing. This offers significant savings over time. During economic booms, if revenues increase more than inflation plus population growth, the surplus should be refunded to taxpayers or used to shore up California's rainy-day fund. If state leaders wanted to spend some of the additional revenues, they should put their proposals up for a vote. California has little choice but to get its spending under control. Higher taxes are not an economically viable option. The Tax Foundation in Washington, D.C., ranks California 46th in its 2007 State Business Climate Rankings. Our neighboring states – Arizona, Nevada and Oregon – rank considerably better. Despite healthy revenue growth over the last few years, the California budget has been mismanaged. Schwarzenegger has been unable to make good on his pledge to reform Sacramento and get state lawmakers off of what he called "autopilot" spending. In the 2003 recall election, he ran as a budget reformer, promising he would "tear up the credit cards" and rein in runaway spending. He has failed to live up to his promises. A spending limit would give California some much-needed budget stability, and allow the governor to salvage his legacy. With a new fiscal mess brewing, it's time for him to try again.

#### California is key to the US economy

Williams 9 Juliet, writer for the Huffington Post, June 29, 2009, “California's Ailing Economy Could Prolong US Recession”, http://www.huffingtonpost.com/2009/06/29/californias-ailing-econom\_n\_222616.html

SACRAMENTO, Calif. — California faces a $24 billion budget shortfall, an eye-popping amount that dwarfs many states' entire annual spending plans. Beyond California's borders, why should anyone care that the home of Google and the Walt Disney Co. might stop paying its bills this week? Virtually all states are suffering in the recession, some worse than California. But none has the economic horsepower of the world's eighth-largest economy, home to one in eight Americans. California accounts for 12 percent of the nation's gross domestic product and the largest share of retail sales of any state. It also sends far more in tax revenue to the federal government than it receives giving a dollar for every 80 cents it gets back which means Californians are keeping social programs afloat across the country. While the deficit only affects the state, California's deepening economic malaise could make it harder for the entire nation's economy to recover. When the state stumbles, its sheer size 38.3 million people creates fallout for businesses from Texas to Michigan. "California is the key catalyst for U.S. retail sales, and if California falls further you will see the U.S. economy suffer significantly," said retail consultant Burt P. Flickinger, managing director of Strategic Resource Group. He warned of more bankruptcies of national retail chains and brand suppliers. Even if California lawmakers solve the deficit quickly, there will likely be more government furloughs and layoffs and tens of billions of dollars in spending cuts. That will ripple through the state economy, sowing fear of even more job losses.

#### States can’t fund new energy programs---budget constraints that result in tradeoffs

Berlin et al 12 Ken, senior vice president for policy and planning and general counsel at the Coalition for Green Capital, Reed Hundt is the CEO of the Coalition for Green Capital, Mark Muro is a senior fellow and the director of policy for the Metropolitan Policy Program at Brookings and Devashree Saha is a senior policy analyst and associate fellow at the Brookings Metropolitan Policy Program, "State Clean Energy Finance Banks: New Investment Facilities for Clean Energy Deployment", September, www.brookings.edu/~/media/research/files/papers/2012/9/12%20state%20energy%20investment%20muro/12%20state%20energy%20investment%20muro

State budget constraints are also severe. At the same time, state and local governments are also facing budget problems that will likely preclude efforts to offset the federal pull-back with bold new grant and subsidy programs. For one thing, state discretionary spending remains and is projected to remain depressed given the continued revenue impacts caused by the after-effects of the Great Depression.17 For another, states are also finding it difficult to issue new general obligation bonds. Bond issuance by states and others including cities, schools, hospitals, and other municipal entities fell to a 10-year low in 2011 after reaching a record high in 2010. Even though debt sales by states are up by 74 percent as of May 2012 compared to the same period in 2011, Moody’s notes that heightened fiscal management concerns will result in less new state borrowing, and that much of the increased issuance reflects refunding issues to take advantage of lower long-term interest rates rather than new money issues for new projects. For instance, states like California, Florida, and New Jersey have all reduced borrowing and are funding some capital projects on a pay-as-you-go basis even while contending with their constitutional budget restrictions. 18¶ In addition, federal fiscal austerity is likely to impose further challenges. With the direct federal aid to the states under ARRA now waning states will face increased fiscal stress that will vary depending on their ability to raise revenue and make cuts in other programs. The implication is that state governments that want to encourage continued clean energy investment in their states are now going to have to do it largely without major new grants, bonds, or subsidy programs.

#### State budget cuts destroys bioterror response

Ahlers 11 Mike M, senior producer, transportation and regulation, for CNN, “Bioterror security at risk”, December 20, http://security.blogs.cnn.com/2011/12/20/bioterror-security-at-risk/

Recent and proposed budget cuts at all levels of government are threatening to reverse the significant post-9/11 improvements in the nation's ability to respond to natural diseases and bioterror attacks, according to a report released Tuesday. "We're seeing a decade's worth of progress eroding in front of our eyes," said Jeff Levi, executive director of the Trust for America's Health, which published the report with the Robert Wood Johnson Foundation.

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Budget cuts already have forced state and local health departments to cut thousands of health officials, the report says. Cuts are jeopardizing the jobs of federal investigators who help states hunt down diseases, threatening the capabilities at all 10 "Level 1" state labs that conduct tests for nerve agents or chemical agents such as mustard gas, and may hurt the ability of many cities to rapidly distribute vaccines during emergencies, it says. The "upward trajectory" of preparedness, fueled by more than $7 billion in federal grants to cities and states in the past 10 years, is leveling off, and the gains of the last decade are "at risk," the report says. The 2011 report departs slightly in tone from the nine previous reports prepared by the two health advocacy groups. Earlier reports, while focusing on gaps in the nation's preparedness for pandemics and bioterror attacks, showed a "steady progression of improvement," said Levi. "Our concern this year is that because of the economic crisis... we may not be as prepared today as we were a couple of years ago," he said. Once lost, medical capabilities take time and money to rebuild, the report says. "It would be like trying to hire and train firefighters in the middle of a fire," Levi said. "You don't do that for fire protection, and we shouldn't be doing that for public health protection." There are few expressions of assurance or optimism in the 2011 report. The report says: – In the past year, 40 states and the District of Columbia have cut funds to public health. – Since 2008, state health agencies have lost 14,910 people through layoffs or attrition; local health departments have lost 34,400. – Federal PHEP grants - Public Health Emergency Preparedness grants - were cut 27 percent between fiscal 2005 and 2011, when adjusted for inflation. – Some 51 cities are at risk for elimination of Cities Readiness Initiative funds, which support the rapid distribution of vaccinations and medications during emergencies. "Two steps forward, three steps back," said Dr. F. Douglas Scutchfield of the University of Kentucky College of Public Health, in an essay accompanying the study. "As certain as the sun will rise in the east, we will experience another event that will demonstrate our inability to cope, as the resources for public health are scarce, and it will prompt the cycle of build-up, neglect, event, build-up, etc." Federal aid to state and local governments for health preparedness peeked in 2002 at about $1.7 billion, and fell to $1.3 billion in fiscal 2012, Levi said. But the impact of cuts were masked when Congress allocated more than $8 billion in emergency funds to fight the H1N1 flu in 2009, Levi said. "Now that money is gone. And so we're seeing the real impact of these cuts," he said. The TFAH report comes just two months after another report concluded that the United States is largely unprepared for a large-scale bioterror attack or deadly disease outbreak.

#### Bioweapons cause extinction

Ochs 2 | Past president of the Aberdeen Proving Ground Superfund Citizens Coalition, Member of the Depleted Uranium Task force of the Military Toxics Project, and M of the Chemical Weapons Working Group [Richard Ochs, June 9, 2002, “Biological Weapons Must Be Abolished Immediately,” <http://www.freefromterror.net/other_articles/abolish.html>]

Of all the weapons of mass destruction, the genetically engineered biological weapons, many without a known cure or vaccine, are an extreme danger to the continued survival of life on earth. Any perceived military value or deterrence pales in comparison to the great risk these weapons pose just sitting in vials in laboratories. While a “nuclear winter,” resulting from a massive exchange of nuclear weapons, could also kill off most of life on earth and severely compromise the health of future generations, they are easier to control. Biological weapons, on the other hand, can get out of control very easily, as the recent anthrax attacks has demonstrated. There is no way to guarantee the security of these doomsday weapons because very tiny amounts can be stolen or accidentally released and then grow or be grown to horrendous proportions. The Black Death of the Middle Ages would be small in comparison to the potential damage bioweapons could cause. Abolition of chemical weapons is less of a priority because, while they can also kill millions of people outright, their persistence in the environment would be less than nuclear or biological agents or more localized. Hence, chemical weapons would have a lesser effect on future generations of innocent people and the natural environment. Like the Holocaust, once a localized chemical extermination is over, it is over. With nuclear and biological weapons, the killing will probably never end. Radioactive elements last tens of thousands of years and will keep causing cancers virtually forever. Potentially worse than that, bio-engineered agents by the hundreds with no known cure could wreck even greater calamity on the human race than could persistent radiation. AIDS and ebola viruses are just a small example of recently emerging plagues with no known cure or vaccine. Can we imagine hundreds of such plagues? HUMAN EXTINCTION IS NOW POSSIBLE. Ironically, the Bush administration has just changed the U.S. nuclear doctrine to allow nuclear retaliation against threats upon allies by conventional weapons. The past doctrine allowed such use only as a last resort when our nation’s survival was at stake. Will the new policy also allow easier use of US bioweapons? How slippery is this slope?

#### Federal support for SPS is key to revitalize the aerospace sector

Mankins, President of SPA and Former NASA Scientist, 9 (John, Preeminent Global Expert on SSP, SPA = Space Power Association, President of ARTEMIS Innovation Management Solutions, Worked @ NASA for 25 Years, “To boldly go: the urgent need for a revitalized investment in space technology,” 5-18, <http://www.thespacereview.com/article/1377/1>)

Unfortunately, the US investment in advanced research and technology for space exploration and development has been reduced to historically low levels, and concurrently has been focused more narrowly than ever before on immediate system designs and development projects. In many respects, the current budget is little more than an “advanced development” program with minimal opportunity for innovation and essentially no possibility that an invention arising from civil space research and technology programs could influence system design decisions, inform budget estimates or inspire new, more ambitious space program goals. The challenge today Space has never been more important to our national security than it is today. The opportunities for truly profound scientific discoveries through space exploration have never been greater. And the pace of international development of new capabilities for space operations has never been faster. Federal budgets for advanced research and technology to enable future space exploration and development have been reduced in scope and focused on near-term system developments to the point that US preeminence in space activities is in question. NASA’s advanced space research and technology budget was over $2 billion in fiscal year (FY) 2005, with a focus on objectives five to ten years in the future and with the purpose of informing program and design decisions, while retiring both technical and budget risks of those future programs. The President’s FY 2007 budget for NASA exploration technology declined to less than $700 million, and of that only a small fraction (perhaps less than $200 million) still addressed longer-term objectives. The corresponding budgets in 2008 and 2009 were further reduced. Little to none of the remaining investment deals with enabling fundamentally new goals or objectives, or dramatically reducing expected costs. With these funding levels and program goals, it is unlikely that the US will maintain leadership in space exploration beyond the current generation of projects—all of which are founded on the “seed corn” harvested from past investments in innovative new space capabilities. Further, declining support for space research and technology is creating an innovation vacuum in the US as small business opportunities evaporate, and funding for universities and students vanishes. This trend jeopardizes America’s long-term leadership in space exploration and development, and damages our ability to achieve important national security goals. History Since the conclusion of the Apollo program in the early 1970s, the US space program has experienced varying levels of support from national leaders in the White House and the US Congress. Moreover, during most of that time human exploration beyond low Earth orbit has been “off the agenda”, with the exception of the short-lived Space Exploration Initiative (SEI) of 1989–1993. During the same period, US robotic exploration has had a number of tremendous successes, primarily involving the outer planets (e.g., Voyager spacecraft, Galileo, and more recently, Cassini), but also the inner solar system (e.g., Viking on Mars, Magellan at Venus), and the recent series of Mars missions (e.g., Pathfinder/Sojourner, Mars Observer, Spirit and Opportunity). However, these programs have tended to reflect one-of-a-kind successes with a minimal number of spacecraft and missions using common systems or technologies, resulting in continuing very high costs. Various attempts to create a foundation of common technologies and modular spacecraft have failed. Similarly, attempts to bridge the gap between robotic mission systems technologies and human space flight technologies (e.g., “Platform Z” from the early Space Station Freedom program) have failed. The most notable successes in this vein arose from the in-space assembly and spacecraft servicing capabilities of the Space Shuttle, first in the early 1980s with the Solar Max servicing mission, then with the series of hugely successful Hubble Space Telescope servicing missions, and finally with the assembly of the International Space Station. However, these achievements were far more the exception than the rule. For the most part human and robotic exploration systems and technologies became increasingly isolated beginning in the 1970s. More recently Following the Columbia tragedy in 2003, the direction of the US space program was again the subject of intense discussion (led by the White House) and including various agencies and organizations. The result, announced in January 2004, was the “Vision for Space Exploration” (VSE). The VSE as formulated originally was much more than a new justification for human space flight. Rather, the Vision addressed the full range of human and robotic exploration, as well as a revitalization of advanced space research and technology with far-reaching implications. The original VSE strategy placed strong emphasis on studies, research, and technology developments that would in time inform decisions regarding architectures and systems for (1) a Space Shuttle replacement; (2) annual robotic technology missions to the Moon; (3) a human return to the Moon to establish a permanent presence; (4) new space observatories to explore the universe beyond our solar system; (5) a campaign of robotic missions to Mars and beyond; and more. With current funding levels and program goals, it is unlikely that the US will maintain leadership in space exploration beyond the current generation of projects—all of which are founded on the “seed corn” harvested from past investments in innovative new space capabilities. However, in 2005 NASA shifted to a dramatically different approach to exploration and related technology developments with the results of the Exploration Systems Architecture Study. ESAS results placed exclusive emphasis on a US human lunar return and in an attempt to accelerate the first operational capability for the “crew exploration vehicle”—a capsule-based Space Shuttle replacement. To achieve this focus, numerous strategic changes were necessary. References to other aspects of space science and exploration were dropped, as was integrated planning of human and robotic exploration missions. For example, the initially planned annual campaign of robotic technology missions to the Moon was reduced to a single orbiter and one lunar lander mission, and these retained little or no role in guiding design decisions for human lunar systems. Also, to avoid technology-related risks, a range of lifecycle cost-related architectural options were eliminated from consideration, including in-space assembly of lunar transportation systems, in-space fueling and servicing, reusable lunar transportation systems, and others. The result was a family of systems for low Earth orbit access and a return to the Moon that involved a re-sized, Apollo-like architectural approach, with a heavy-lift launch vehicle and expendable transportation system elements. Significant shifts in agency budgets followed these new strategic directions, including drastic reductions in advanced space research and technology development, and a redefinition of remaining investments as “technology development”, focused on already-made design decisions. This shift in strategy was epitomized by NASA’s elimination of the NASA Institute of Advanced Concepts (NIAC) on the grounds of budget constraints, despite that fact that NIAC represented less than one third of one percent of the agency’s annual budget. The real point was that NIAC no longer had a legitimate role given NASA’s new approach to innovation: low engineering risk designs, and modest technology developments focused on those designs. Unfortunately, the elimination of design-to-cost and investments in longer-term innovation have come with a price. By recent estimates, the transportation-related cost of a single human mission to the Moon using the present, low-technology design solution will exceed $5 billion; transportation for two crewed lunar missions per year would require approximately 60% of NASA’s annual budget. Moreover, in-house agency subject matter expertise has been severely affected, as has the Agency’s contribution to US space technology leadership. Overall, the ambitious goals that were articulated by the White House in 2004 have been pushed into the indefinite future. A permanent human outpost of the Moon, development of lunar resources, deployment of large space observatories, and ambitious missions to the outer planets: all of these have been pushed out into the future by 20 years or more. Moreover, it is difficult to envision how such goals could ever be achieved using current systems concepts and concomitant prohibitively high costs. Only new systems concepts, enabled by focused space research and technology developments, can change this assessment. At the same time, real progress continues to be made by the international space community, grounded in steady investments in new technologies and systems—and resulting in regular accomplishments in space systems. The international flotilla of robotic space missions to the Moon illustrates this point: the US contribution of a single orbiter and a future lander are largely indistinguishable from the missions of other countries. Without an adequate strategy for, and more robust investment in, advanced space research and technology, long-term US preeminence in space exploration and development is doubtful. The Office of Naval Research (ONR) of the US Department of Defense (DOD) provides a useful example for how long-term but focused government research and technology advancement may be pursued. In particular, the ONR uses four complementary program strategies: a foundation of in-house subject matter expertise, sustained basic research and technology investments, development and demonstration of prototypes, and a focus on future capabilities. The concept of “Future Naval Capabilities” (FNCs) is used by the ONR to focus advanced research and technology (R&T) efforts around novel systems and concepts of operations. FNCs allow a range of R&T investments to be coordinated around specific new capabilities—even though the details of those systems designs have not yet been finalized, nor development programs approved. Also, the ONR uses the concept of “Innovative Naval Prototypes” (INPs) to orchestrate a range of ongoing R&T and draw the results of those efforts into nearer-term demonstrations of working prototypes and test-beds. INPs are characterized by ambitious technical objectives, and their potential to truly transform future naval operations. In addition, the ONR has preserved for over 60 years a commitment to long lead, discipline-oriented research and technology development. These investments have been responsible for advances in areas as diverse as materials, electronics, communications, power, and others—but all leading toward naval preeminence. And finally, DOD investments have maintained a foundation of in-house subject matter expertise at the Naval Research Laboratory (NRL) and other installations. Over the years, these in-house experts have enabled more effective technology investment decisions and, working with civilian and uniformed leaders better system acquisition decisions. Novel technologies and systems concepts must be matured and validated before decisions are made regarding the detailed designs of future space systems. There are a variety of business models that might be considered for space research and technology development. However, the strategies used by the ONR for its investments seem especially appropriate to the long-term character of the challenge of space exploration and development. For civil space exploration and development, these would be: (1) maintenance of in-house NASA subject matter expertise in relevant technologies; (2) sustained, discipline-oriented investment in basic research and technology at NASA centers, universities, and small businesses; (3) development and demonstration of transformational systems prototypes in partnerships involving NASA, major industry and others; and (4) a sustained focus on future space capabilities. And the results of these investments must be harvested before designs are finalized and system acquisition programs started. Assessment It is hardly consistent with the aspirations of Americans to “go where everyone has been before…” However, it is fantasy to suppose that the civil space program can affordably accomplish ambitious goals and objectives in space using systems concepts and technologies of the last century. Novel technologies and systems concepts must be matured and validated before decisions are made regarding the detailed designs of future space systems. In fact, numerous reports over a period of decades have established the criticality of a robust and focused investment in advanced research and technology, including the findings of several National Commissions, committees of the National Academy of Sciences, and others. Stable, robust, long-term federal investments in advanced research and technology for future civil space capabilities—funded at a level sufficient to assure US preeminence in space science, exploration, and utilization—are critical if we are to meet the challenges of this century: achieving ambitious goals in science and exploration, delivering on the promise of space to contribute to a strong national economy, maintaining a skilled aerospace workforce,

**mark**

and providing the foundations for future national security. It is time for the Congress and the White House—recognizing the challenges facing this nation’s space sector—to articulate and implement a strategy to revitalize advanced space research and technology and to make a sustained commitment to the implementation of that strategy. The recently chartered national study on the future of human space exploration, chaired by Norm Augustine, should take up this task. What should be done? The following actions are needed now: The federal government should revitalize its investment to invent and develop innovative new technologies for space science, exploration, and development, consistent with assuring US preeminence in space activities and industry’s ability to adopt these innovations for application in future space missions and markets. A balanced distribution should be created in the allocation of revitalized advanced space research and technology funding among more basic research efforts, technology maturation, and demonstrations of new technologies. These investments should be guided by the goal of creating ambitious new “future space capabilities”—well-enough defined to inform technology investments, but flexible enough to allow the results of those investments to influence designs, reduce costs, and enable new and more ambitious science goals. In establishing these investments, NASA must seek and embrace inputs from outside the agency (including other agencies, industry, academia) to develop, review, and recommend NASA advanced space research and technology plans, programs, and strategies. NASA in-house space research and technology (performed by engineers and technical specialists) should be restored, in balance with increased external research (by industry and academia). Funding for university research should also be targeted toward producing graduates with advanced degrees to support the follow-on work that will be undertaken by industry. We need to reconsider what makes an ambitious space program worth a substantial investment of public dollars—and consider again the historical and future importance of advancing space technology and developing truly new and valuable space capabilities for the public, the nation, and the world. To achieve the purposes for which it was created, NASA must maintain the excellence of its workforce and their expertise in a wide array of cutting-edge new technologies. As they enter the workforce, it will be impossible to attract the “best and the brightest” to federal service without a foundation of cutting-edge research and technology program opportunities. Moreover, a healthy NASA workforce, armed with appropriate skills and secure in its future, will provide better oversight for technical system procurement and program management. This competence will result in better performing systems, better ability to meet schedule, more productive interactions with other stakeholders in the aerospace enterprise, and more efficient use of taxpayer dollars. Although NASA must accommodate changing priorities and budgets, it must also ensure that it does not lose the important skills and knowledge currently possessed by its workers. NASA also must continue to ensure that the NASA workforce gains the new competencies needed in the aerospace industry of the future. In order accelerate the transition of novel technologies into transformational future space capabilities NASA must invest in demonstrations of innovative space prototypes on the ground and in space. Innovative space prototypes should be implemented in coordination with the DoD, academia, and industry; and wherever possible with co-funding with the private sector in order to speed the application of these new capabilities in creating new space industries. To implement these recommendations effectively, focused and timely near term action is essential: The National Academy of Sciences (National Research Council) should be chartered to conduct an independent, visionary study to identify 6–12 transformational “future space capabilities” that would—if developed—enable a wide range of new, ambitious, and affordable space exploration and development. These future space capabilities would in turn drive planning for government and industry research and technology investments. The Administration should develop—in consultation with the US Congress, and using NASA as its executive agent—a strategic research and technology development roadmap that establishes a baseline for achieving these goals, including objectives, schedules, milestones and budgets. This roadmap should be used to provide the basis for future US investments in advanced space research and technology development and demonstrations. The US space program needs more than a national discussion of what human exploration should do next: International Space Station research versus lunar outposts versus asteroid sorties versus human Mars missions, and so on. These are important questions. Even more, however, weneed to set in place basic policies that can endure from one administration to the next. We need to reconsider what makes an ambitious space program worth a substantial investment of public dollars—and consider again the historical and future importance of advancing space technology and developing truly new and valuable space capabilities for the public, the nation, and the world.

#### Aerospace solves cyberterrorism

Deloitte 12 | (Deloitte is a consulting and financial advisory service, Report Commissioned by the Aerospace Industries Association, " The Aerospace and Defense Industry in the U.S. A financial and economic impact study," March, http://www.aia-aerospace.org/assets/deloitte\_study\_2012.pdf)

The world continues to demonstrate how dangerous it is and how our civilization and way of life can be put in jeopardy quickly. The surprise attacks on Pearl Harbor and the tragic events surrounding the terrorist attacks of 9/11 have shown our nation how vulnerable it can be. Technology innovations and products developed in the aerospace and defense industry have made our nation safer, from sophisticated sensors that can “see” nefarious activities of our adversaries, to the bomb and metal detectors that have become ubiquitous at airports around the world, the industry continues to innovate to produce the necessary defenses used to increase our national security. Recent advances to counter the next generation national security threats include for example, sophisticated software to trace bank transactions of terrorists, advanced listening sensors to eavesdrop on communications of known terrorists, and sophisticated sensors to help discover threats at our airports, borders, and seaports. Of course, the unmanned aerial vehicle (UAV) has been extraordinarily successful in helping to see, then attack if necessary, our adversaries. Lastly, the specter of a potential cyber-attack on our nation’s water, power, transportation or communications infrastructure is cause for alarm, and the industry continues to develop the next generation technologies to address these and future threats.

#### Great power nuclear war

Fritz 9 | Researcher for International Commission on Nuclear Nonproliferation and Disarmament [Jason, researcher for International Commission on Nuclear Nonproliferation and Disarmament, former Army officer and consultant, and has a master of international relations at Bond University, “Hacking Nuclear Command and Control,” July, <http://www.icnnd.org/latest/research/Jason_Fritz_Hacking_NC2.pdf>]

This paper will analyse the threat of cyber terrorism in regard to nuclear weapons. Specifically, this research will use open source knowledge to identify the structure of nuclear command and control centres, how those structures might be compromised through computer network operations, and how doing so would fit within established cyber terrorists’ capabilities, strategies, and tactics. If access to command and control centres is obtained, terrorists could fake or actually cause one nuclear-armed state to attack another, thus provoking a nuclear response from another nuclear power. This may be an easier alternative for terrorist groups than building or acquiring a nuclear weapon or dirty bomb themselves. This would also act as a force equaliser, and provide terrorists with the asymmetric benefits of high speed, removal of geographical distance, and a relatively low cost. Continuing difficulties in developing computer tracking technologies which could trace the identity of intruders, and difficulties in establishing an internationally agreed upon legal framework to guide responses to computer network operations, point towards an inherent weakness in using computer networks to manage nuclear weaponry. This is particularly relevant to reducing the hair trigger posture of existing nuclear arsenals. All computers which are connected to the internet are susceptible to infiltration and remote control. Computers which operate on a closed network may also be compromised by various hacker methods, such as privilege escalation, roaming notebooks, wireless access points, embedded exploits in software and hardware, and maintenance entry points. For example, e-mail spoofing targeted at individuals who have access to a closed network, could lead to the installation of a virus on an open network. This virus could then be carelessly transported on removable data storage between the open and closed network. Information found on the internet may also reveal how to access these closed networks directly. Efforts by militaries to place increasing reliance on computer networks, including experimental technology such as autonomous systems, and their desire to have multiple launch options, such as nuclear triad capability, enables multiple entry points for terrorists. For example, if a terrestrial command centre is impenetrable, perhaps isolating one nuclear armed submarine would prove an easier task. There is evidence to suggest multiple attempts have been made by hackers to compromise the extremely low radio frequency once used by the US Navy to send nuclear launch approval to submerged submarines. Additionally, the alleged Soviet system known as Perimetr was designed to automatically launch nuclear weapons if it was unable to establish communications with Soviet leadership. This was intended as a retaliatory response in the event that nuclear weapons had decapitated Soviet leadership; however it did not account for the possibility of cyber terrorists blocking communications through computer network operations in an attempt to engage the system. Should a warhead be launched, damage could be further enhanced through additional computer network operations. By using proxies, multi-layered attacks could be engineered. Terrorists could remotely commandeer computers in China and use them to launch a US nuclear attack against Russia. Thus Russia would believe it was under attack from the US and the US would believe China was responsible. Further, emergency response communications could be disrupted, transportation could be shut down, and disinformation, such as misdirection, could be planted, thereby hindering the disaster relief effort and maximizing destruction. Disruptions in communication and the use of disinformation could also be used to provoke uninformed responses. For example, a nuclear strike between India and Pakistan could be coordinated with Distributed Denial of Service attacks against key networks, so they would have further difficulty in identifying what happened and be forced to respond quickly. Terrorists could also knock out communications between these states so they cannot discuss the situation. Alternatively, amidst the confusion of a traditional large-scale terrorist attack, claims of responsibility and declarations of war could be falsified in an attempt to instigate a hasty military response. These false claims could be posted directly on Presidential, military, and government websites. E-mails could also be sent to the media and foreign governments using the IP addresses and e-mail accounts of government officials. A sophisticated and all encompassing combination of traditional terrorism and cyber terrorism could be enough to launch nuclear weapons on its own, without the need for compromising command and control centres directly.

### 2AC Exports CP

#### Perm do both

#### Perm do CP – it’s a restriction on production

#### CP makes prices spike to $14

**Levi, ’12** David M. Rubenstein Senior Fellow for Energy and the Environment at the Council on Foreign Relations (CFR) and Director of the CFR program on energy security and climate change (Michael Levi, The Hamilton Project, June 2012, “A Strategy for US Natural Gas Exports,” [http://www.hamiltonproject.org/files/downloads\_and\_links/06\_exports\_levi.pdf)//CC](http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf%29//CC)

The first way that prices could converge is through U.S. LNG exports, which could ultimately bring the various prices together, net of transport costs (including an indeterminate risk premium paid to investors in risky LNG projects). Indeed initial natural gas exports themselves will tend to shrink opportunities for subsequent exports. A recent DOE study projects that with moderate U.S. gas resources and twelve billion cubic feet a day of exports, U.S. benchmark prices would rise to more than $8 per thousand cubic feet by the middle of the next decade (EIA 2012c). When combined with the cost of moving natural gas from the United States to overseas markets, there is a strong chance that some exports would be unprofitable at that price. The same analysis found that if U.S. resources were lower than anticipated, prices could reach $14 per thousand cubic feet by 2020, making exports undoubtedly uneconomic at the margin. All that said, assuming U.S. LNG exports at the outset of this analysis would make no sense, since their very existence depends on the particular export policy that is adopted.

#### No LNG exports – we’d export the tech to produce instead of the energy

Clifford Krauss (writer for the New York Times) January 4, 2013 “Exports of American Natural Gas May Fall Short of High Hopes” http://www.nytimes.com/2013/01/05/business/energy-environment/exports-of-us-gas-may-fall-short-of-high-hopes.html?pagewanted=all

Now, the same companies that had such high hopes for imports are proposing to salvage those white elephants by spending billions more to convert them into terminals to export some of the nation’s extra gas to Asia and Europe, where gas is roughly triple the American price. Just like last time, some of the costly ventures could turn out to be poor investments. Countries around the world are importing drilling expertise and equipment in hopes of cracking open their own gas reserves through the same techniques of hydraulic fracturing and horizontal drilling that unleashed shale gas production in the United States. Demand for American gas — which would be shipped in a condensed form called liquefied natural gas, or L.N.G. — could easily taper off by the time the new export terminals really get going, some energy specialists say. “It will be easier to export the technology for extracting shale gas than exporting actual gas,” said Jay Hakes, former administrator of the Energy Department’s Energy Information Administration. “I know the pitch about our price differentials will justify the high costs of L.N.G. We will see. Gas by pipeline is a good deal. L.N.G.? Not so clear.” Even the terminal operators acknowledge that probably only a lucky few companies will export gas because it can cost $7 billion or more to build a terminal, and then only after a rigorous federal regulatory permitting process. The exploratory process to find a suitable site for a new terminal alone can take a year and cost $100 million, operators say, and financing can be secured only once long-term purchase agreements — 20 years or more — are reached with foreign buyers.

#### timeframe – 2015

**Levi, ’12** David M. Rubenstein Senior Fellow for Energy and the Environment at the Council on Foreign Relations (CFR) and Director of the CFR program on energy security and climate change (Michael Levi, The Hamilton Project, June 2012, “A Strategy for US Natural Gas Exports,” [http://www.hamiltonproject.org/files/downloads\_and\_links/06\_exports\_levi.pdf)//CC](http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf%29//CC)

However, no major LNG importer other than South Korea has an applicable FTA with the United States (Ratner et al. 2011). Would-be exporters have thus sought approval to export without restriction. Cheniere Energy’s Sabine Pass Facility has received DOE and Federal Energy Regulatory Commission (FERC) approval for 2.2 billion cubic feet of daily LNG exports to non-FTA countries, and applications totaling another 10.3 billion cubic feet per day are under review. These combined applications involve total volumes similar to current U.S. LNG import capacity (Guegel 2010). Exports from the first facilities would start no earlier than 2015

#### It increases gas prices and exporters won’t be able to recover costs

**Krauss, 1/4/**13 – Clifford, “Exports of American Natural Gas May Fall Short of High Hopes” New York Times, <http://www.nytimes.com/2013/01/05/business/energy-environment/exports-of-us-gas-may-fall-short-of-high-hopes.html?pagewanted=all>)

If the American terminals could be built tomorrow, they would have a perfect market opportunity. The production glut in the United States has reduced natural gas prices in this country by more than two-thirds since 2008.

Gas prices in most other places around the world are much higher because they are linked to oil, which has remained comparatively expensive. Gas prices in the United States are around $3.30 per thousand cubic feet, compared with $10 to $11 in Europe and over $15 in Asia.

But analysts say that the price spread could quickly shrink as a host of factors converge. Gas prices in the United States will face upward pressure as exports rise, electric utilities switch to gas-fired plants from coal, and companies use more natural gas in manufacturing and for fleet vehicles.

“With rising U.S. gas prices, U.S. L.N.G. could be priced out of the market,” said Noel Tomnay, head of global gas research at the consultancy Wood Mackenzie. “Even without L.N.G. exports, the price of gas will go up.”

#### Wyden’s opposition will swing the Congress against the CP – he’ll ensure there’s a debate

**Tracy, 12/25**/12 (Tennille, “Lawmaker Gets a Say on Gas Exports” Wall Street Journal,

<http://online.wsj.com/article/SB10001424127887324677204578187574260709426.html>)

New discoveries of natural gas are beginning to transform the U.S. economy, and energy companies say exporting it is the next logical step. But a call for restraint is coming from Sen. Ron Wyden.

The Oregon Democrat, who will have a powerful perch in Congress to influence the debate, has been fielding substantial home-state opposition to such exports. The brewing fight illustrates how energy abundance can be just as divisive in Washington as a shortage, a theme likely to play out in coming years as the U.S. deals with growing energy supplies.

This month, the Obama administration released a report saying exports would help economic growth, a conclusion the Department of Energy has said would shape its decisions next year on export permits.

Hours after the report came out, Mr. Wyden was sitting at Bistro Cacao, a French restaurant a few blocks from the Capitol, with Andrew Liveris, chief executive of Dow Chemical Co., DOW -0.15% one of the largest natural-gas-consuming companies in the U.S.

Congressional aides said that over dinner, the two men discussed whether natural-gas exports would hurt U.S. manufacturers, and if so, how badly. Mr. Liveris has called the administration's report "fundamentally flawed" and said unchecked exports would threaten jobs and billions of dollars of manufacturing investments.

The 63-year-old Mr. Wyden is set to become chairman of the Senate Energy and Natural Resources Committee in January. Like Mr. Liveris, he says he fears manufacturers would be hurt if cheap natural gas that could be used at home to make fertilizer or plastics is shipped overseas.

"I want to make sure we look for the opportunities…to the greatest extent possible, to export value-added products rather than the raw material," the senator said in a recent interview.

"Natural gas is a strategic American advantage," he added. "We've got it. The whole world wants it."

Just a few years ago, the U.S. was preparing to increase imports of natural gas. An unexpected rise in domestic production, due largely to advances in drilling technology, has transformed the country into a potential net exporter.

For Mr. Wyden, the issue hits close to home. Some of his constituents in Oregon are fighting two proposed natural-gas export terminals near the Pacific Ocean, the only facilities of their kind on the West Coast.

Mr. Wyden is known for working with Republicans, including ones on his committee who want exports to move forward. Some energy companies, like Exxon Mobil Corp., XOM -0.35% are urging lawmakers not to stand in the way of new jobs at natural-gas production sites and export terminals.

That is one reason Mr. Wyden hasn't proposed an outright energy export ban. Instead, he suggests softer restrictions such as a cap. "How can policy makers look to find a sweet spot where you can allow exports to keep wells in production without letting exports drive prices so high that they hurt the American manufacturers?" he said.

#### No exports – we’d get undercut in more local markets

Andrew Holland (writer for the Christian Science Monitor) December 28, 2012 “LNG exports still iffy, even if they win approval” http://www.csmonitor.com/Environment/2012/1228/LNG-exports-still-iffy-even-if-they-win-approval

Once everything in Washington settles down in the new year, the Department of Energy is likely to move fairly quickly to approve export terminals for liquefied natural gas. However, just because the DOE approves LNG terminals does not mean that a boom in LNG exports will necessarily follow. A recent report commissioned by the DOE actually predicts that there will be very few exports, unless there is a major increase in demand from Asia and no new production in Europe. This scenario would cause prices to increase by $1.09 per thousand cubic feet and the United States would export about 8.4 trillion cubic feet of gas. "The math doesn't add up on the US's ambitions to export natural gas," a recent article in Quartz, a digital news site, makes the case for low exports. Author Steve LeVine goes through the price assumptions and says that there is a possible profit for US drillers by shipping it abroad, but concludes that already established and lower-cost producers (notably Qatar and Norway) would undercut American exporters.

#### Exports won’t happen – price undercuts

**Levi, ’12** David M. Rubenstein Senior Fellow for Energy and the Environment at the Council on Foreign Relations (CFR) and Director of the CFR program on energy security and climate change (Michael Levi, The Hamilton Project, June 2012, “A Strategy for US Natural Gas Exports,” [http://www.hamiltonproject.org/files/downloads\_and\_links/06\_exports\_levi.pdf)//CC](http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf%29//CC)

It is far from clear that all or even most of this export volume would be used even if it were approved. A recent MIT study looked at nine scenarios for U.S. and world natural gas markets; none of them led to the emergence of significant U.S. natural gas exports, in large part because other lower cost producers undercut prices offered by the United States in distant markets (MIT 2011). Other forces, discussed in Chapter 2, could also lead global natural gas prices to converge even without U.S. exports, removing opportunities for economically attractive U.S. LNG sales. Indeed, most analysts anticipate that less LNG will be exported than currently pending permits would allow, even if all of those were approved. (They also expect to see more permit applications, since the plans behind many of the pending ones are expected to eventually fizzle.) For example, Citigroup analysts foresee up to 5 billion cubic feet a day of LNG exports by the end of the decade, barring regulatory barriers (Morse et al. 2012). UK gas producer BG has projected up to six billion cubic feet a day by then (Gismatullin 2012), the same volume that Deloitte (2011) analysts have focused their modeling on. Given this consistent view among market analysts on the maximum likely volume of LNG exports from the United States, the main analysis in this paper focuses on the possibility of up to six billion cubic feet of daily exports. This is approximately half the capacity currently awaiting approval and almost ten percent of current U.S. natural gas production. I consider the possibility of significantly greater or lesser exports in Chapter 6; the qualitative conclusions do not change, though the specific costs and benefits of allowing LNG exports do. To provide some context, Figure 2 shows natural gas consumption and LNG trade by region.

### 2AC K

#### Set a high threshold – unless they can explain minute interaction of their theories with our aff, reject their impact claims

#### The judge weighs the material effects of the plan against the k – key to 1AC offense and intellectual progress

#### Death outweighs

**Paterson, 03** - Department of Philosophy, Providence College, Rhode Island (Craig, “A Life Not Worth

Living?”, Studies in Christian Ethics, <http://sce.sagepub.com>)

Contrary to those accounts, I would argue that it is **death** per se that is really the objective evil for us, not because it deprives us of a prospective future of overall good judged better than the alternative of non-being. It cannot be about harm to a former person who has ceased to exist, for no person actually suffers from the sub-sequent non-participation. Rather, death in itself is an evil to us because it ontologically destroys the current existent subject **— it is the ultimate in etaphysical lightening strikes.** 80 The evil of death is truly an ontological evil borne by the person who already exists, **independently of calculations about better or worse possible lives.** Such an evil need not be consciously experienced in order to be an evil **for the kind of being a human person is**. Death is an evil because of the change in kind it brings about**, a change that is destructive of the type of entity that we essentially are**. Anything, whether caused naturally or caused by human intervention (intentional or unintentional) that drastically interferes in the process of maintaining the person in existence is an objective evil for the person. What is crucially at stake here, and is dialectically supportive of the self-evidency of the basic good of human life, is that death is a **radical interference** with the current life process of the kind of being that we are. In consequence, death itself can be credibly thought of as a ‘primitive evil’ for all persons, **regardless of the extent to which they are currently or prospectively capable of participating in a full array of the goods of life.** 81 In conclusion, concerning willed human actions, it is justifiable to state that **any intentional rejection of human life** itself **cannot therefore be warranted** since it is **an expression of an ultimate disvalue for the subject**, namely, **the destruction of the present person; a radical ontological good that we cannot begin to weigh objectively against the travails of life in a rational manner**. To deal with the sources of disvalue (pain, suffering, etc.) **we should not seek to irrationally destroy the person, the very source and condition of all human possibility.**

#### Predictions best – solves paralysis and reactionism

**Ulfelder, 11** Jay Ulfelder is Research Director for the Political Instability Task Force, Science Applications International Corporation "Why Political Instability Forecasts Are Less Precise Than We’d Like (and Why It’s Still Worth Doing)" May 5 dartthrowingchimp.wordpress.com/2011/05/05/why-political-instability-forecasts-are-less-precise-than-wed-like-and-why-its-still-worth-doing/

If this is the best we can do, then what’s the point? Well, consider the alternatives. For starters, we might decide to skip statistical forecasting altogether and just target our interventions at cases identified by expert judgment as likely onsets. Unfortunately, those expert judgments are probably going to be an even less reliable guide than our statistical forecasts, so this “solution” only exacerbates our problem. Alternatively, we could take no preventive action and just respond to events as they occur. If the net costs of responding to crises as they happen are roughly equivalent to the net costs of prevention, then this is a reasonable choice. Maybe responding to crises isn’t really all that costly; maybe preventive action isn’t effective; or maybe preventive action is potentially effective but also extremely expensive. Under these circumstances, early warning is not going to be as useful as we forecasters would like. If, however, any of those last statements are false–if responding to crises already underway is very costly, or if preventive action is (relatively) cheap and sometimes effective–then we have an incentive to use forecasts to help guide that action, in spite of the lingering uncertainty about exactly where and when those crises will occur. Even in situations where preventive action isn’t feasible or desirable, reasonably accurate forecasts can still be useful if they spur interested observers to plan for contingencies they otherwise might not have considered. For example, policy-makers in one country might be rooting for a dictatorship in another country to fall but still fail to plan for that event because they don’t expect it to happen any time soon. A forecasting model which identifies that dictatorship as being at high or increasing risk of collapse might encourage those policy-makers to reconsider their expectations and, in so doing, lead them to prepare better for that event. Where does that leave us? For me, the bottom line is this: even though forecasts of political instability are never going to be as precise as we’d like, they can still be accurate enough to be helpful, as long as the events they predict are ones for which prevention or preparation stand a decent chance of making a (positive) difference.

#### No root cause

**Moore, 04** [John Norton, Professor of Law at the University of Virginia He formerly served as the first Chairman of the Board of the United States Institute of Peace and as the Counselor on International Law to the Department of State, Winter, “Beyond the Democratic Peace: Solving the War Puzzle”, 44 Va. J. Int'l L. 341, Lexis Law]

If major interstate war is predominantly a product of a synergy between a potential nondemocratic aggressor and an absence of effective deterrence, what is the role of the many traditional "causes" of war? Past, and many contemporary, theories of war have focused on the role of specific disputes between nations, ethnic and religious differences, arms races, poverty and social injustice, competition for resources, incidents and accidents, greed, fear, perceptions of "honor," and many other factors. Such factors may well play a role in motivating aggression or generating fear and manipulating public opinion. The reality, however, is that while some of these factors may have more potential to contribute to war than others, there may well be an **infinite set of motivating factors**, or human wants, motivating aggression. It is not the independent existence of such motivating factors for war but rather the circumstances permitting or encouraging high-risk decisions leading to war that is the key to more effectively controlling armed conflict. And the same may also be true of democide. The early focus in the Rwanda slaughter on "ethnic conflict," as though Hutus and Tutsis had begun to slaughter each other through spontaneous combustion, distracted our attention from the reality that a nondemocratic Hutu regime had carefully planned and orchestrated a genocide against Rwandan Tutsis as well as its Hutu opponents. [n158](http://www.lexisnexis.com.proxy.lib.umich.edu/lnacui2api/frame.do?reloadEntirePage=true&rand=1329520437445&returnToKey=20_T13973620735&parent=docview&target=results_DocumentContent&tokenKey=rsh-20.647208.6119287203#n158) Certainly if we were able to press a button and end poverty, racism, religious intolerance, injustice, and endless disputes, we would want to do so. Indeed, democratic governments must remain committed to policies that will produce a better world by all measures of human progress. The broader achievement of democracy and the rule of law will itself assist in this progress. No one, however, has yet been able to demonstrate the kind of robust correlation with any of these "traditional" causes of war that is reflected in the "democratic peace." Further, given the difficulties in overcoming many of these social problems, an approach to war exclusively dependent on their solution may **doom us to war for generations** to come.

#### Violence has declined because of every global force consistent with the aff – proves no terminal impact uniqueness – prefer our ev which is based on multidisciplinary research and empirical data

**Pinker, 11** [Steven, professor of psychology at Harvard University, *The Better Angels of our Nature Why Violence Has Declined*, ISBN: 067002295

**T**his book is about what may be the most important thing that has ever happened in human history. Believe it or not—and I know that most people do not—violence has **declined** over long stretches of time, and today we may be living in the **most peaceable era** in our species’ existence. The decline, to be sure, has not been smooth; it has not brought violence down to zero; and it is not guaranteed to continue. But it is an **unmistakable development**, visible on scales from millennia to years, from the waging of wars to the spanking of children. **No aspect of life** is untouched by the retreat from violence. Daily existence is very different if you always have to worry about being abducted, raped, or killed, and it’s hard to develop sophisticated arts, learning, or commerce if the institutions that support them are looted and burned as quickly as they are built. The historical trajectory of violence affects not only **how life is lived** but how it is understood. What could be more fundamental to **our sense of meaning** and purpose than a conception of whether the strivings of the human race over long stretches of time have left us better or worse off? How, in particular, are we to make sense of *modernity*—of the erosion of family, tribe, tradition, and religion by the forces of individualism, cosmopolitanism, reason, and science? So much depends on how we understand the legacy of this transition: whether we see our world as a nightmare of crime, terrorism, genocide, and war, or as a period that, by the standards of history, is blessed by unprecedented levels of peaceful coexistence. The question of whether the arithmetic sign of trends in violence is positive or negative also bears on our conception of human nature. Though theories of human nature rooted in biology are often associated with fatalism about violence, and the theory that the mind is a blank slate is associated with progress, in my view it is the other way around. How are we to understand the natural state of life when our species first emerged and the processes of history began? The belief that violence has increased suggests that the world we made has contaminated us, perhaps irretrievably. The belief that it has xxi decreased suggests that we started off nasty and that the artifices of civilization have moved us in a noble direction, one in which we can hope to continue. This is a big book, but it has to be. First I have to convince you that violence really has gone down over the course of history, knowing that the very idea invites skepticism, incredulity, and sometimes anger. Our cognitive faculties predispose us to believe that we live in violent times, especially when they are stoked by media that follow the watchword “If it bleeds, it leads.” The human mind tends to estimate the probability of an event from the ease with which it can recall examples, and scenes of carnage are more likely to be beamed into our homes and burned into our memories than footage of people dying of old age.1 No matter how small the percentage of violent deaths may be, in absolute numbers there will always be enough of them to fill the evening news, so people’s impressions of violence will be disconnected from the actual proportions. Also distorting our sense of danger is our moral psychology. No one has ever recruited activists to a cause by announcing that things are getting better, and bearers of good news are often advised to keep their mouths shut lest they lull people into complacency. Also, a large swath of our intellectual culture is loath to admit that there could be anything good about civilization, modernity, and Western society. But perhaps the main cause of the illusion of ever-present violence springs from one of the forces that drove violence down in the first place. The decline of violent behavior has been paralleled by a decline in attitudes that tolerate or glorify violence, and often the attitudes are in the lead. By the standards of the mass atrocities of human history, the lethal injection of a murderer in Texas, or an occasional hate crime in which a member of an ethnic minority is intimidated by hooligans, is pretty mild stuff. But from a contemporary vantage point, we see them as signs of how low our behavior can sink, not of how high our standards have risen. In the teeth of these preconceptions, I will have to persuade you with numbers, which I will glean from datasets and depict in graphs. In each case I’ll explain where the numbers came from and do my best to interpret the ways they fall into place. The problem I have set out to understand is the reduction in violence at many scales—in the family, in the neighborhood, between tribes and other armed factions, and among major nations and states. If the history of violence at each level of granularity had an idiosyncratic trajectory, each would belong in a separate book. But to my repeated astonishment, the global trends in almost all of them, viewed from the vantage point of the present, point downward. That calls for documenting the various trends between a single pair of covers, and seeking commonalities in when, how, and why they have occurred. Too many kinds of violence, I hope to convince you, have moved in the same direction for it all to be a coincidence, and that calls for an explanation. It is natural to recount the history of violence as a moral saga—a heroic struggle of justice against evil—but that is not my starting point. My approach is scientific in the broad sense of seeking explanations for why things happen. We may discover that a particular advance in peacefulness was brought about by moral entrepreneurs and their movements. But we may also discover that the explanation is more prosaic, like a change in technology, governance, commerce, or knowledge. Nor can we understand the decline of violence as an unstoppable force for progress that is carrying us toward an omega point of perfect peace. It is a collection of statistical trends in the behavior of groups of humans in various epochs, and as such it calls for an explanation in terms of psychology and history: how human minds deal with changing circumstances. A large part of the book will explore the psychology of violence and nonviolence. The theory of mind that I will invoke is the synthesis of cognitive science, affective and cognitive neuroscience, social and evolutionary psychology, and other sciences of human nature that I explored in *How the Mind Works*, *The Blank Slate*, and *The Stuff of Thought*. According to this understanding, the mind is a complex system of cognitive and emotional faculties implemented in the brain which owe their basic design to the processes of evolution. Some of these faculties incline us toward various kinds of violence. Others—“the better angels of our nature,” in Abraham Lincoln’s words—incline us toward cooperation and peace. The way to explain the decline of violence is to identify the changes in our cultural and material milieu that have given our peaceable motives the upper hand. Finally, I need to show how our history has engaged our psychology. Everything in human affairs is connected to everything else, and that is especially true of violence. Across time and space, the more peaceable societies also tend to be richer, healthier, better educated, better governed, more respectful of their women, and more likely to engage in trade. It’s not easy to tell which of these happy traits got the virtuous circle started and which went along for the ride, and it’s tempting to resign oneself to unsatisfying circularities, such as that violence declined because the culture got less violent. Social scientists distinguish “endogenous” variables—those that are inside the system, where they may be affected by the very phenomenon they are trying to explain—from the “exogenous” ones—those that are set in motion by forces from the outside. Exogenous forces can originate in the practical realm, such as changes in technology, demographics, and the mechanisms of commerce and governance. But they can also originate in the intellectual realm, as new ideas are conceived and disseminated and take on a life of their own. The most satisfying explanation of a historical change is one that identifies an exogenous trigger. To the best that the data allow it, I will try to identify exogenous forces that have engaged our mental faculties in different ways at different times and that thereby can be said to have caused the declines in violence. The discussions that try to do justice to these questions add up to a big book—big enough that it won’t spoil the story if I preview its major conclusions. *The Better Angels of Our Nature* is a tale of six trends, five inner demons, four better angels, and five historical forces. ***Six Trends*** (chapters 2 through 7). To give some coherence to the many developments that make up our species’ retreat from violence, I group them into six major trends. The first, which took place on the scale of millennia, was the transition from the anarchy of the hunting, gathering, and horticultural societies in which our species spent most of its evolutionary history to the first agricultural civilizations with cities and governments, beginning around five thousand years ago. With that change came a reduction in the chronic raiding and feuding that characterized life in a state of nature and a more or less fivefold decrease in rates of violent death. I call this imposition of peace the Pacification Process. The second transition spanned more than half a millennium and is best documented in Europe. Between the late Middle Ages and the 20th century, European countries saw a tenfold-to-fiftyfold decline in their rates of homicide. In his classic book *The Civilizing Process*, the sociologist Norbert Elias attributed this surprising decline to the consolidation of a patchwork of feudal territories into large kingdoms with centralized authority and an infrastructure of commerce. With a nod to Elias, I call this trend the Civilizing Process. The third transition unfolded on the scale of centuries and took off around the time of the Age of Reason and the European Enlightenment in the 17th and 18th centuries (though it had antecedents in classical Greece and the Renaissance, and parallels elsewhere in the world). It saw the first organized movements to abolish socially sanctioned forms of violence like despotism, slavery, dueling, judicial torture, superstitious killing, sadistic punishment, and cruelty to animals, together with the first stirrings of systematic pacifism. Historians sometimes call this transition the Humanitarian Revolution. The fourth major transition took place after the end of World War II. The two-thirds of a century since then have been witness to a **historically unprecedented development**: the great powers, and developed states in general, have **stopped waging war** on one another. Historians have called this blessed state of affairs the Long Peace.2 The fifth trend is also about armed combat but is more tenuous. Though it may be hard for news readers to believe, since the end of the Cold War in 1989, organized conflicts of all kinds—civil wars, genocides, repression by autocratic governments, and terrorist attacks—have declined throughout the world. In recognition of the tentative nature of this happy development, I will call it the New Peace. Finally, the postwar era, symbolically inaugurated by the Universal Declaration of Human Rights in 1948, has seen a growing revulsion against aggression on smaller scales, including violence against ethnic minorities, women, children, homosexuals, and animals. These spin-offs from the concept of human rights—civil rights, women’s rights, children’s rights, gay rights, and animal rights—were asserted in a cascade of movements from the late 1950s to the present day which I will call the Rights Revolutions. *Five Inner Demons* (chapter 8)*.* Many people implicitly believe in the Hydraulic Theory of Violence: that humans harbor an inner drive toward aggression (a death instinct or thirst for blood), which builds up inside us and must periodically be discharged. Nothing could be further from a contemporary scientific understanding of the psychology of violence. Aggression is not a single motive, let alone a mounting urge. It is the output of several psychological systems that differ in their environmental triggers, their internal logic, their neurobiological basis, and their social distribution. Chapter 8 is devoted to explaining five of them. *Predatory* or *instrumental violence* is simply violence deployed as a practical means to an end. *Dominance* is the urge for authority, prestige, glory, and power, whether it takes the form of macho posturing among individuals or contests for supremacy among racial, ethnic, religious, or national groups. *Revenge* fuels the moralistic urge toward retribution, punishment, and justice. *Sadism* is pleasure taken in another’s suffering. And *ideology* is a shared belief system, usually involving a vision of utopia, that justifies unlimited violence in pursuit of unlimited good. *Four Better Angels* (chapter 9)*.* Humans are not innately good (just as they are not innately evil), but they come equipped with motives that can orient them away from violence and toward cooperation and altruism. *Empathy* (particularly in the sense of sympathetic concern) prompts us to feel the pain of others and to align their interests with our own. *Self-control* allows us to anticipate the consequences of acting on our impulses and to inhibit them accordingly. The *moral sense* sanctifies a set of norms and taboos that govern the interactions among people in a culture, sometimes in ways that decrease violence, though often (when the norms are tribal, authoritarian, or puritanical) in ways that increase it. And the faculty of *reason* allows us to extricate ourselves from our parochial vantage points, to reflect on the ways in which we live our lives, to deduce ways in which we could be better off, and to guide the application of the other better angels of our nature. In one section I will also examine the possibility that in recent history *Homo sapiens* has literally evolved to become less violent in the biologist’s technical sense of a change in our genome. But the focus of the book is on transformations that are strictly environmental: changes in historical circumstances that engage a fixed human nature in different ways. *Five Historical Forces* (chapter 10). In the final chapter I try to bring the psychology and history back together by identifying exogenous forces that favor our peaceable motives and that have driven the multiple declines in violence. The *Leviathan*, a state and judiciary with a monopoly on the legitimate use of force, can defuse the temptation of exploitative attack, inhibit the impulse for revenge, and circumvent the self-serving biases that make all parties believe they are on the side of the angels. *Commerce* is a positive-sum game in which everybody can win; as technological progress allows the exchange of goods and ideas over longer distances and among larger groups of trading partners, other people become more valuable alive than dead, and they are less likely to become targets of demonization and dehumanization. *Feminization* is the process in which cultures have increasingly respected the interests and values of women. Since violence is largely a male pastime, cultures that empower women tend to move away from the glorification of violence and are less likely to breed dangerous subcultures of rootless young men. The forces of *cosmopolitanism* such as literacy, mobility, and mass media can prompt people to take the perspective of people unlike themselves and to expand their circle of sympathy to embrace them. Finally, an intensifying application of knowledge and rationality to human affairs—the *escalator of reason—*can force people to recognize the futility of cycles of violence, to ramp down the privileging of their own interests over others’, and to reframe violence as a problem to be solved rather than a contest to be won. As one becomes aware of the decline of violence, the world begins to look different. The past seems less innocent; the present less sinister. One starts to appreciate the small gifts of coexistence that would have seemed utopian to our ancestors: the interracial family playing in the park, the comedian who lands a zinger on the commander in chief, the countries that quietly back away from a crisis instead of escalating to war. The shift is not toward complacency: we enjoy the peace we find today because people in past generations were appalled by the violence in their time and worked to reduce it, and so we should work to reduce the violence that remains in our time. Indeed, it is a recognition of the decline of violence that best affirms that such efforts are worthwhile. Man’s inhumanity to man has long been a subject for moralization. With the knowledge that something has driven it down, we can also treat it as a matter of cause and effect. Instead of asking, “Why is there war?” we might ask, “Why is there peace?” We can obsess not just over what we have been doing wrong but also over what we have been doing right. Because we *have* been doing something right, and it would be good to know what, exactly, it is. Many people have asked me how I became involved in the analysis of violence. It should not be a mystery: violence is a natural concern for anyone who studies human nature. I first learned of the decline of violence from Martin Daly and Margo Wilson’s classic book in evolutionary psychology, *Homicide*, in which they examined the high rates of violent death in nonstate societies and the decline in homicide from the Middle Ages to the present. In several of my previous books I cited those downward trends, together with humane developments such as the abolition of slavery, despotism, and cruel punishments in the history of the West, in support of the idea that moral progress is compatible with a biological approach to the human mind and an acknowledgment of the dark side of human nature. 3 I reiterated these observations in response to the annual question on the online forum www.edge.org, which in 2007 was “What Are You Optimistic About?” My squib provoked a flurry of correspondence from scholars in historical criminology and international studies who told me that the evidence for a historical reduction in violence is more extensive than I had realized.4 It was their data that convinced me that there was an underappreciated story waiting to be told.

#### Threat construction is good – it allows us to anticipate and prevent danger

**Berke 98 -** Joseph Berke, Found. And Dir. Arbours Crisis Centre, 1998, Even Paranoids Have Enemies, p. 5-6

Internal and external persecution come together in the theoretical model of ‘the paranoid process’ – a set of developmental and defensive mechanisms which serve to delineate the individual’s inner psychic world and his experience of his emerging self, while, at the same time, contributing to the shaping of his sense of significant objects in his experiential world (Meissner 1986). One of this model’s core components, ‘the paranoid construction’ refers to a cognitive reorganization taking place in an attempt to sustain a comfortable sense of self which, however, may be at the expense of reality testing. This process, in its extreme form, leads to the formation of a persecutory bond, where a link is established between, on the one hand, the paranoid individual and, on the other, his persecutors and the terrifying forces that threaten to engulf him. This can become a rigid construction that reinforces the spiral of paranoia-persecution-paranoia. Meissner understands this mechanism as offering a sense of cohesion and durability to a fragile self, though it often involves a high degree of pathology and victimization. Instances of this process abound in individuals, institutions, and groups (including whole nations) where views of internal and external situations are (ab)used to service a brittle sense of identity. Fully recognizing this predicament, and the dangers involved, requires thinking about and tolerating our own conflictual parts. Paradoxically, a certain degree of paranoia is desirable as it is a basis for discrimination (Segal 1994); when we let a new experience touch us, we acknowledge that it may be bad or good, which enables us to anticipate danger. In leaders of an organization, for instance, a certain degree of paranoid potential can be a useful resource, as opposed to a dangerous naivety that would prevent the leader from becoming aware of the situations of activation of aggression in the group, or regression to primitive levels of functioning. Where the leader can be aware of, and apprehend risk and danger, there is the possibility of preparation for the group to face them and cope with them.

**Self-fulfilling prophecy is backwards – failure to express our fears causes them to occur**

**Macy 95**- Joanna Macy, General Systems Scholar and Deep Ecologist, 1995, Ecopsychology

There is also the superstition that negative thoughts are self-fulfilling. This is of a piece with the notion, popular in New Age circles, that we create our own reality I have had people tell me that “to speak of catastrophe will just make it more likely to happen.” Actually, the contrary is nearer to the truth. Psychoanalytic theory and personal experience show us that it is precisely what we repress that eludes our conscious control and tends to erupt into behavior. As Carl Jung observed, “When an inner situation is not made conscious, it happens outside as fate.” But ironically, in our current situation, the person who gives warning of a likely ecological holocaust is often made to feel guilty of contributing to that very fate.

### 2AC EST

#### Volatility wrecks the fertilizer industry

**IECA, ‘3** nonprofit organization created to promote the interests of manufacturing companies for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete (Industrial Energy Consumers of America, 22 July 2003, “IMPACT OF THE U.S. NATURAL GAS CRISIS ON THE NORTH AMERICAN NITROGEN FERTILIZER INDUSTRY,” [http://www.ieca-us.com/wp-content/uploads/072203Fertilizerbriefing.pdf)//CC](http://www.ieca-us.com/wp-content/uploads/072203Fertilizerbriefing.pdf%29//CC)

Natural gas is the principal and only economically feasible feedstock raw material used for producing anhydrous ammonia, the building block product for nitrogen fertilizer. The fertilizer industry accounts for approximately three percent of the total natural gas consumed in the United States, while natural gas costs at current price levels account for nearly 90 percent of the cost to produce ammonia. Natural gas is the primary feedstock in the production of virtually all commercial nitrogen fertilizers in the United States. It is important to be very clear about this: natural gas is not simply an energy source for us; it is the raw material from which nitrogen fertilizers are made. The production process involves a catalytic reaction between elemental nitrogen derived from the air with hydrogen derived from natural gas. The primary product from this reaction is anhydrous ammonia (NH3). Anhydrous ammonia is used directly as a commercial fertilizer or as the basic building block for producing virtually all other forms of nitrogen fertilizers such as urea, ammonium nitrate and nitrogen solutions, as well as diammonium phosphate and mono-ammonium phosphate. The volatility and high level of U.S. natural gas prices, virtually unprecedented in the history of our country, has resulted in the permanent closure of almost 20 percent of U.S. nitrogen fertilizer capacity and the idling of an additional 25 percent. By the end of December 2000, the U.S. nitrogen operating rate fell to below 70 percent of capacity. By the end of January 2001, operating rates dropped to an all-time low of only 46 percent. To put this into perspective, the average U.S. operating rate during the 1990s was 92 percent. During the gas spike in late February and early March of 2003, working capital requirements for one Mid-Western nitrogen manufacturer to buy gas for its operations nearly doubled--an increase of nearly $40 million in one month. 2 Impact on U.S. Farmers Natural gas prices began to steadily increase during calendar year 2000, rising from an average of $2.36 per MMBtu in January to over $6.00 per MMBtu in December 2000 and to a record $10 per MMBtu in January 2001 (Figure 3). In turn, this forced fertilizer production costs to unprecedented levels. Ammonia production costs, for example, spiked up from approximately $100 per ton to $170 per ton by June 2000, to $220 per ton in December 2000, and to an average of over $350 per ton in January 2001. The sharp rise in natural gas prices and the resulting curtailment of U.S. fertilizer production also has had a dramatic impact on fertilizer prices throughout the marketing chain and, in particular, at the farm level. Nitrogen prices at the farm level, for example, jumped this year to near-record high levels. According to U.S. Department of Agriculture data, the U.S. average farm-level price for ammonia jumped this spring to $373 per ton compared to an average spring price last year of $250. Similarly, urea prices have climbed from $191 to $261 and UAN prices from $127 to $161 in the same time period. This translates into an increase in cost to a typical Midwest corn farmer of $10 to $15 per acre. It is important to understand that most U.S. nitrogen fertilizer is consumed within a very short time frame in the fall and spring application seasons.

#### Solves food crises

**Fertilizer Institute, ‘9** trade group representing the fertilizer industry (The Fertilizer Institute, 2 April 2009, “The US Fertilizer Industry and Climate Change Policy,” [http://www.kochfertilizer.com/pdf/TFI2009ClimateChange.pdf)//CC](http://www.kochfertilizer.com/pdf/TFI2009ClimateChange.pdf%29//CC)
Fertilizer nutrients – nitrogen, phosphorus and potassium – are all naturally occurring elements that are “fed” to plants and crops for healthy and abundant food and fiber production. They are currently responsible for 40 to 60 percent of the world’s food supply. Harvest after harvest, fertilizers replenish our soils by replacing the nutrients removed by each season’s crop. Each year, the world’s population grows by 80 million and fertilizers – used in an environmentally sensitive way – are critical to ensuring that our nation’s farmers grow an adequate supply of nutritious food for American and international consumers. As consumers around the world demand improved diets, the global demand for fertilizers is growing rapidly. Under these circumstances, U.S. farmers compete with farmers from around the world for a limited supply of nutrients. For example, over 85 percent of our potash and over 50 percent of the nitrogen used on U.S. farms is now imported from other countries. The United States needs a strong domestic fertilizer industry to ensure this valuable resource is available for a stable food production system. Today, the world’s food supply, as represented by the grain stocks-to-use ratio, is near its lowest level in 35 years In six of the last seven years, consumption of grains and oilseeds has exceeded production. Many experts believe that we are just one natural disaster or substandard world harvest away from a full-scale food crisis

**There is no threat and at worst it will only mean cooperation**

**Burger et al. 10** – Kees Burger Development Economics, Corresponding author, Wageningen University, Hollandseweg, Jeroen Warner AND Eefje Derix Disaster Studies, Wageningen Universit “Governance of the world food system and crisis prevention” http://www.stuurgroepta.nl/rapporten/Foodshock-web.pdf

Both European water and agricultural policies are based on the belief that there will always be cheap food aplenty on the world market. A recent British report 23 reflects this optimism. Although production is now more prone to world market price shocks, their effects on farm incomes are softened by extensive income supports (van Eickhout et al. 2007). Earlier, in a 2003 report, a European group of agricultural economists wrote: Food security is no longer a prime objective of European food and agricultural policy. There is no credible threat to the availability of the basic ingredients of human nutrition from domestic and foreign sources. If there is a food security threat it is the possible disruption of supplies by natural disasters or catastrophic terrorist action. The main response necessary for such possibilities is the appropriate contingency planning and co-ordination between the Commission and Member States (Anania et al. 2003). Europe, it appears, feels rather sure of itself, and does not worry about a potential food crisis. We are also not aware of any special measures on standby. Nevertheless a fledgling European internal security has been called into being that can be deployed should (food) crises strike. The Maastricht Treaty (1992) created a quasi-decision-making platform to respond to transboundary threats. Since 9/11 the definition of what constitutes a threat has been broadened and the protection capacity reinforced. In the Solidarity Declaration of 2003 member states promised to stand by each other in the event of a terrorist attack, natural disaster or human-made calamity (the European Security Strategy of 2003). Experimental forms of cooperation are tried that leave member-state sovereignty intact, such as pooling of resources. The EU co-operates in the area of health and food safety but its mechanisms remain decentrslised by dint of the principle of subsidiarity. The silo mentality between the European directorates is also unhelpful, leading to Babylonian confusion. Thus, in the context of forest fires and floods the Environment DG refers to ‘civil protection’. The European Security and Defence Policy( ESDP) of 2006, which is hoped to build a bridge between internal and external security policy, on the other hand refers to ‘crisis management’, while the ‘security’ concept mainly pertains to pandemics (Rhinard et al. 2008: 512, Boin et al. 2008: 406).

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#### Won’t pass – plan is the status quo, ANWR, and new taxes prove ux overwhelms

Politico 3-20-13

Andrew Restuccia, Energy Security Trust faces big sticking point, http://www.politico.com/story/2013/03/offshore-drilling-energy-plan-faces-roadblock-89098.html

President Barack Obama will face an uphill climb in Congress with his bipartisan proposal to steer offshore drilling revenue into research on green energy and natural gas, key observers signaled Tuesday. Their comments come just days after Obama used a speech at a national research laboratory to pitch his Energy Security Trust proposal, which he described as a plan to protect the public from high gasoline prices. A major sticking point: the administration’s unwillingness to expand drilling to areas like the Arctic National Wildlife Refuge, as Republicans have proposed. A former top energy aide to Sen. Lisa Murkowski (R-Alaska) cast doubt Tuesday on whether policymakers can come to an agreement given that gap. “If this gets translated somehow into new taxes on the oil and gas industry to then pay for this, I don’t believe it’s going to happen,” said McKie Campbell, a partner at BlueWater Strategies and a former Republican staff director of the Senate Energy and Natural Resources Committee. The money for the administration’s plan is going to have to come from somewhere, Campbell said. “There has to be more revenue or it’s deficit spending,” he said during a panel discussion hosted by Securing America’s Future Energy. Andy Karsner, former assistant energy secretary during the George W. Bush administration, similarly cast doubt that the Energy Security Trust plan can move without more drilling. “You’re not going to do it without expanding production,” he said. But expanded drilling is a no-go for the administration, as White House energy adviser Heather Zichal made clear at the event. “No. ANWR is off the table. Our existing [outer continental shelf] plan and nothing else,” Zichal told reporters.

#### Explicitly conditioning new production is vital to secure EST support

**Jenkins, 3/19/13** - graduate student and researcher at the Massachusetts Institute of Technology, where he is a candidate for a Masters of Science in Technology & Policy; worked previously as the Director of Energy and Climate Policy at the Breakthrough Institute and as a Policy and Research Associate at the Renewable Northwest Project (Jesse, “How Serious Are President Obama and Congressional Republicans About an Energy Security Trust Fund?”

<http://theenergycollective.com/jessejenkins/200436/how-serious-are-president-obama-and-congressional-republicans-about-energy-secur>

President Obama unveiled his support for this concept in his 2013 State of the Union Address and followed that up with remarks last Friday at Argonne National Laboratory in Illinois. The president envisions an Energy Security Trust of $2 billion over 10 years "funded with revenue from profitable oil and gas companies." The Trust would "support research into a range of cost-effective technologies -- like advanced vehicles that run on electricity, homegrown biofuels, fuel cells, and domestically produced natural gas" -- each designed to reduce America's near-total dependence on oil as a transportation fuel. (For more, see this White House infographic at right or this fact sheet explaining the president's vision.)

Strong precedent for energy trust fund

The idea of a dedicated trust fund for energy research funded by small "user fees" on current energy production and/or consumption builds on the successful logic of the national Highway Trust Fund.

For highways, a small gas tax paid by current users of the highway system ensures we are setting aside the necessary funds today to both maintain the current system and invest in the infrastructure of tomorrow.

Likewise, dedicating a small fee on oil and gas production (or consumption) or a portion of increased royalties from energy production on public lands would ensure that as we enjoy relatively cheap and abundant energy supplies today, we are also setting aside the funds needed to make steady investments in the advanced energy technologies needed to secure cheap and abundant energy in the future.

This concept could also be extended to include a small charge on electricity usage, known as a "wires fee" that could generate additional funds for research and development of advanced power generation, storage, transmission, and demand response technologies. Several states, including New York, have already implemented similar charges often referred to as "system benefits" or "public benefits charges."

From the 1970s-90s, a similar charge on the interstate transport of natural gas was dedicated to fund the Gas Research Institute, a public-private research consortia responsible for numerous advancements, including a key role in the development of commercial shale gas extraction technologies.

In short, several strong precedents exists for the Energy Security Trust concept.

Making the Energy Security Trust a reality

So in general, it is high time we begin a serious conversation about how to generate the necessary, long-term investments in energy research and innovation necessary to address national imperatives including improved security of supply, reduced public health impacts of our energy system, and climate change mitigation. The Energy Security Trust may be a big step in the right direction.

With that in mind, the thing that worries me about President Obama's proposed Energy Security Trust as it is difficult to tell how serious he and his administration are about this concept -- or how likely this proposal is to work its way through a politically charged Congress.

If the White House is serious, they must know that the proposal as it currently stands, which does not envision opening up any new areas previously closed to oil & gas production, will not produce any new federal revenues, at least as far as the Congressional Budget Office (CBO) is concerned.

The way CBO scores budgetary impacts already assumes revenues for any federal lands currently open to oil and gas production are part of the baseline revenue picture. That means that redirecting a a portion of those revenues -- say $2 billion over ten years -- from existing areas open to oil and gas production is actually going to be scored by CBO as deficit enhancing, rather than deficit neutral as the president has been portraying this.

According to the White House fact sheet on the Energy Security Trust:

"The mandatory funds [for the Trust] would be set aside from royalty revenues generated by oil and gas development in Federal waters of the Outer Continental Shelf (OCS), already included in the administration’s five year plan. These revenues are projected to increase over the next several years based on a combination of leasing, production, and price trends, with additional revenues potentially generated as a result of reforms being proposed in the FY 2014 Budget. The Trust is paid for within the context of the overall budget." [emphasis added]

The problem with this concept is that even if oil and gas prices are likely to increase in the future, thus increasing federal revenues from oil and gas leases on public lands, any such revenue coming from areas already open to production will be considered by CBO as already included in the baseline revenue picture.

So the only piece of this proposal that may result in new revenues that CBO would consider as "offsets" for new spending would be the "additional revenues potentially generated as a result of reforms being proposed in the FY 2014 Budget."

What those reforms would constitute is unclear. In response to an inquiry for additional details, a White House staffer told me that "those reforms will be made clear when the [FY 2014] budget is released."

A bipartisan proposal?

The president likes to say that his Energy Security Trust "builds on a proposal supported by a broad bipartisan coalition, including retired military leaders." The coalition he refers to is known as "SAFE" (for Securing America's Future Energy), and he's right that this idea was once embraced by the Republican side of the aisle. In fact, a 2008 energy blueprint released by House Republicans, the "American Energy Act," included the concept of a trust fund for advanced technology research funded by oil and gas royalties. The idea has been championed in particular by Representative Devin Nunes of California in the House and Senator Lisa Murkowksi of Alaska in the Senate.

Given these bipartisan bonafides, one might think this concept was a slam dunk.

The tricky situation though is that each of the Republican proposals envision dedicating royalty revenues from expanded domestic production of oil and gas, including opening up new areas previously closed to production in the Outer Continental Shelf (OCS) and places like the Alaska National Wildlife Refuge (ANWR).

So both the CBO budget procedures and the GOP's position on using royalties for an energy R&D trust fund means that if President Obama wants to secure truly bipartisan support for this new Energy Security Trust proposal and ensure it doesn't increase the deficit, he's ultimately going to have to offer a real trade: new oil and gas production areas for new revenues dedicated to clean energy R&D.

Unfortunately, Obama already agreed to open up new areas of the OCS for offshore oil and gas production in April 2010 -- and he did so without demanding any concessions from the GOP regarding the use of revenues for advanced energy R&D. He's unlikely to get any credit for his previous actions in any new negotiations with Republicans, and even if he did, CBO's scoring would now take into account revenues from these areas in the budget baseline.

In short, the president missed a big chance to put this energy trust fund into action in 2010. To get another chance now, he'll have to find some new carrot to entice GOP cooperation.

A rock and a hard place

Presumably the president already knows all of this. So perhaps this is simply his opening bid, and he's fully prepared in the future to make this a real deficit neutral proposal by offering new areas for oil & gas production in exchange for support from Congressional Republicans. I don't doubt that Senator Murkowski would demand something like that, and the House GOP most certainly would. So maybe, for once, President Obama hasn't pre-capitulated and is saving his cards for the negotiating table. But it's not clear.

#### And, they’ll pocket it

**Baker, 12** (Peter, New York Times, “Criticized as Weak in Past Talks, Obama Takes Harder Line” 12/2,

<http://www.nytimes.com/2012/12/03/us/politics/pushing-gop-to-negotiate-obama-ends-giving-in.html?pagewanted=all>

His approach is born of painful experience. In his first four years in office, Mr. Obama has repeatedly offered what he considered compromises on stimulus spending, health care and deficit reduction to Republicans, who either rejected them as inadequate or pocketed them and insisted on more. Republicans argued that Mr. Obama never made serious efforts at compromise and instead lectured them about what they ought to want rather than listening to what they did want.

Either way, the two sides were left at loggerheads over the weekend with less than a month until a series of painful tax increases and spending cuts automatically take effect, risking what economists say would be a new recession.

Mr. Obama refuses to propose more spending cuts until Republicans accept higher tax rates on the wealthy, and Republicans refuse to accept higher tax rates on the wealthy while asking for more spending cuts.

“I’m puzzled why Republicans are locking into a principle that’s not sustainable and why Democrats aren’t taking the moment to put forward their own vision of entitlement reform,” said Peter R. Orszag, a former White House budget director for Mr. Obama.

Mr. Orszag’s former White House colleagues said they had grown tired of making unilateral concessions only to see Republicans moving the goal posts, as they see it. “The president is not going to negotiate with himself,” said Dan Pfeiffer, the White House communications director. “He’s laid out his position, and Republicans have to come to the table.”

### Food Prices D

**Innovation solves**

**Chang 11 –** Graduated Cornell Law School (Gordon G., Feb 21**, “**Global Food Wars” http://blogs.forbes.com/gordonchang/2011/02/21/global-food-wars/)

In any event, food-price increases have apparently been factors in the unrest now sweeping North Africa and the Middle East. The poor spend up to half their disposable income on edibles, making rapid food inflation a cause of concern for dictators, strongmen, and assorted autocrats everywhere. So even if humankind does not go to war over bad harvests, Paskal may be right when she contends that climate change may end up altering the global map. This is not the first time in human history that food shortages looked like they would be the motor of violent geopolitical change. Yet amazing agronomic advances, especially Norman Borlaug’s Green Revolution in the middle of the 20th century, have consistently proved the pessimists wrong. In these days when capitalism is being blamed for most everything, it’s important to remember the power of human innovation in free societies—and the efficiency of free markets.

**No resource wars**

Allouche, 11 - Research Fellow at the Institute of Development Studies at the University of Sussex (Jeremy,. "The sustainability and resilience of global water and food systems: Political analysis of the interplay between security, resource scarcity, political systems and global trade" Food Policy, Volume 36, Supplement 1, January 2011, Science Direct)

Water/food resources, war and conflict The question of resource scarcity has led to many debates on whether scarcity (whether of food or water) will lead to conflict and war. The underlining reasoning behind most of these discourses over food and water wars comes from the Malthusian belief that there is an imbalance between the economic availability of natural resources and population growth since while food production grows linearly, population increases exponentially. Following this reasoning, neo-Malthusians claim that finite natural resources place a strict limit on the growth of human population and aggregate consumption; if these limits are exceeded, social breakdown, conflict and wars result. Nonetheless, it seems that most empirical studies do not support any of these neo-Malthusian arguments. Technological change **and greater inputs of capital** have **dramatically increased labour productivity in agriculture.** More generally, the neo-Malthusian view has suffered because during the last two centuries **humankind has breached many resource barriers that seemed unchallengeable**. Lessons from history: alarmist scenarios, resource wars and international relations In a so-called age of uncertainty, a number of alarmist scenarios have linked the increasing use of water resources and food insecurity with wars. The idea of water wars (perhaps more than food wars) is a dominant discourse in the media (see for example Smith, 2009), NGOs (International Alert, 2007) and within international organizations (UNEP, 2007). In 2007, UN Secretary General Ban Ki-moon declared that ‘water scarcity threatens economic and social gains and is a potent fuel for wars and conflict’ (Lewis, 2007). Of course, this type of discourse has an **instrumental purpose**; security and conflict are here used for raising water/food as key policy priorities at the international level. In the Middle East, presidents, prime ministers and foreign ministers have also used this bellicose rhetoric. Boutrous Boutros-Gali said; ‘the next war in the Middle East will be over water, not politics’ (Boutros Boutros-Gali in Butts, 1997, p. 65). The question is not whether the sharing of transboundary water sparks political tension and alarmist declaration, but rather to what extent water has been a principal factor in international conflicts. The evidence seems quite weak. Whether by president Sadat in Egypt or King Hussein in Jordan, none **of these declarations have been followed up by military action**. The governance of transboundary water has gained increased attention these last decades. This has a direct impact on the global food system as water allocation agreements determine the amount of water that can used for irrigated agriculture. The likelihood of conflicts over water is an important parameter to consider in assessing the stability, sustainability and resilience of global food systems. None **of the** various and extensive databases on the causes of war show water as a casus belli. Using the International Crisis Behavior (ICB) data set and supplementary data from the University of Alabama on water conflicts, Hewitt, Wolf and Hammer found only seven disputes where water seems to have been at least a partial cause for conflict (Wolf, 1998, p. 251). In fact, about 80% of the incidents relating to water were limited purely to governmental rhetoric intended for the electorate (Otchet, 2001, p. 18). As shown in The Basins At Risk (BAR) water event database, **more than two-thirds of over 1800 water-related ‘events’ fall on the ‘cooperative’ scale** (Yoffe et al., 2003). Indeed, if one takes into account a much longer period, the following figures clearly demonstrate this argument. According to studies by the United Nations Food and Agriculture Organization (FAO), organized political bodies signed between the year 805 and 1984 more than 3600 water-related treaties, and approximately 300 treaties dealing with water management or allocations in international basins have been negotiated since 1945 ([FAO, 1978] and [FAO, 1984]). The fear around water wars have been driven by a Malthusian outlook which equates scarcity with violence, conflict and war. There is however **no direct correlation between water scarcity and transboundary conflict**. Most specialists now tend to agree that the major issue is not scarcity per se but rather the allocation of water resources between the different riparian states (see for example [Allouche, 2005], [Allouche, 2007] and [Rouyer, 2000]). Water rich countries have been involved in a number of disputes with other relatively water rich countries (see for example India/Pakistan or Brazil/Argentina). The perception of each state’s estimated water needs really constitutes the core issue in transboundary water relations. Indeed, whether this scarcity exists or not in reality, perceptions of the amount of available water shapes people’s attitude towards the environment (Ohlsson, 1999). In fact, some water experts have argued that scarcity drives the process of co-operation among riparians ([Dinar and Dinar, 2005] and [Brochmann and Gleditsch, 2006]). In terms of international relations, the threat of water wars due to increasing scarcity **does not make much sense in the light of the recent** historical record. Overall, the water war rationale expects conflict to occur over water, and appears to suggest that violence is a viable means of securing national water supplies, an argument which is highly contestable. The debates over the likely impacts of climate change have again popularised the idea of water wars. The argument runs that climate change will precipitate worsening ecological conditions contributing to resource scarcities, social breakdown, institutional failure, mass migrations and in turn cause greater political instability and conflict ([Brauch, 2002] and [Pervis and Busby, 2004]). In a report for the US Department of Defense, Schwartz and Randall (2003) speculate about the consequences of a worst-case climate change scenario arguing that water shortages will lead to aggressive wars (Schwartz and Randall, 2003, p. 15). Despite growing concern that climate change will lead to instability and violent conflict, **the evidence base to substantiate the connections is thin** ([Barnett and Adger, 2007] and [Kevane and Gray, 2008]).

**Tech development solves**

**Thompson 5/13/11 –** Dr. Robert L. Thompson is a senior fellow for The Chicago Council on Global Affairs and professor emeritus at the University of Illinois at Urbana-Champaign. “Proving Malthus Wrong, Sustainable agriculture in 2050” http://scienceblogs.com/tomorrowstable/2011/05/proving\_malthus\_wrong\_sustaina.php

Tools available today, including plant breeding and biotechnology, can make presently unusable soils productive and increase the genetic potential of individual crops - enhancing drought and stress tolerance, for example - while also producing gains in yields. Existing tools can also internalize plants' resistance to disease, and even improve a plant's nutritional content - meaning consumers can get more nutritional value without increasing their consumption. Furthermore, modern high-productivity agriculture minimizes farmers' impact on the environment. Failure to embrace these technologies will result in further destruction of remaining forests. Adoption of technologies that produce more output from fewer resources has been hugely successful from an economic standpoint: prior to the price spike in 2008, there was a 150-year downward trend in the real price of food. The jury is still out on whether the long-term downward trend will resume, prices will flatten out on a new higher plateau, or they will trend upward in the future. The key is investing in research in the public and private sectors to increase agricultural productivity faster than global demand grows. Long ago, British scholar Thomas Malthus predicted that the human population would eventually outgrow its ability to feed itself. However, Malthus has been proven wrong for more than two centuries precisely because he underestimated the power of agricultural research and technology to increase productivity faster than demand. There is no more reason for Malthus to be right in the 21st century than he was in the 19th or 20th - but only if we work to support, not impede, continued agricultural research and adoption of new technologies around the world.

**Empirically denied – human development solves**

**Wish 10** – writer for Allianz (study of demographics) (Vladish “Who’s Afraid of Thomas Malthus?” Global |01 October 2010by Valdis Wish http://knowledge.allianz.com/?224

None of the troubling predictions about overpopulation and global starvation have come to pass. So should we still be worried about too many people on Earth? The specter of too many people and not enough food has haunted scientists and philosophers since at least the time of Aristotle. The most famous is Thomas Malthus, who in 1798 grimly predicted that population growth would outpace food production, resulting in human death and misery. The Industrial Revolution and new agricultural techniques during the 19th century, however, helped prevent a major global starvation. Over 150 years later, Paul R. Ehrlich published a bestselling book called "The Population Bomb," in which he projected the starvation of hundreds of millions during the 1970s-80s. While the world saw some devastating famines during those decades—in Bangladesh and Ethiopia, for example—they were not on the global scale that Ehrlich had predicted. But even after **history proved Malthus and Ehrlich wrong**, theories about the dangers of overpopulation still capture the public interest. Jared Diamond, author of the bestseller "Collapse", says humanity still faces a perilous "population explosion" in the coming decades. His book describes the bloody events in Rwanda, one of the world's most densely populated countries, during the 1990s to illustrate what can happen when population growth converges with problems like environmental degradation and food shortages. Diffusing the population bomb Malthus, Ehrlich, and Diamond all have their critics, mainly economists and theorists who deny that population growth negatively affects quality of life. One of them is U.S. political economist Nicholas Eberstadt, who argues that overpopulation alone is not to blame for poor living conditions. Global living standards, he notes, have improved dramatically during the 20th century despite a near-quadrupling of the human population. "In most people's minds, the notions of 'overpopulation,' 'overcrowding,' or 'too many people' are associated with images of hungry children, unchecked disease, squalid living conditions, and awful slums," writes Eberstadt. "But the proper name for those conditions is human poverty." Countries like Taiwan, South Korea, or the Netherlands show that densely populated countries can prosper as well. Nonetheless, concerns that population growth obstructs development have inspired large-scale family planning measures since the 1950s. In 1969, the UN created the UN Fund for Population Activities (UNFPA), which supports family planning initiatives worldwide. In the late 1970s, the Chinese government introduced its famous one-child-per-family policy. While many question whether such schemes are humane, the policy clearly slowed down Chinese population growth to the extent that India will soon be the world's most populous country.

**Resource wars won’t escalate to great power conflict**

**Dombrowski 4** – associate professor, US Naval War College's Strategic Research Department (Peter, Naval War College Review, http://findarticles.com/p/articles/mi\_m0JIW/is\_1\_57/ai\_113755359/print)

Unfortunately, Klare barely pauses to consider the possibility that diplomatic, economic, and political developments might ease potential resource conflicts before they escalate into armed conflicts. After all, countries fighting over access to water or oil could simply negotiate arrangements or allow market forces to dictate outcomes; the author himself notes examples and cases where diplomatic solutions have succeeded in the past. In fact, the absence of economic reasoning in this book is startling. After all, economists from cranks to countless mainstream professionals have demonstrated how market forces can help manage the worst aspects of resource shortages. Thus energy shortages that lead to price increases in turn encourage consumers to conserve; consumption is reduced, as well as overall dependence. Hence, despite tremendous economic growth, Western Europe, Japan, and even the United States have become much more energy efficient since the oil shock of the 1970s. Substitution effects are also possible, although perhaps not for a resource as fundamental and elemental as water.

### K

**No prophecies**

**Jarvis, 76** (Robert, professor of political science at Columbia University, Perception and Misperception in International Politics, p. 84)

Spiral and deterrence theories thus contradict each other at every point. They seem to be totally different conceptions of international relations claiming to be unconditionally applicable. If this were true, it would be important to gather evidence that would disconfirm at least one of them. 53 A look at the basic question of the effects of the application of negative sanctions makes it clear that neither theory is confirmed all the time. There are lots of cases in which arms have been increased, aggressors deterred, significant gains made, without setting off spirals. And there are also many instances in which the use of power and force has not only failed or even left the state worse off than it was originally (both of these outcomes can be explained by deterrence theory), but has led to mutual insecurity and misunderstanding that harmed both sides. Evidence Against the Spiral Model The most obvious embarrassment to the spiral model is posed when an aggressive power will not respond in kind to conciliation. Minor concessions, the willingness to treat individual issues as separate from the basic conflict, and even an offer to negotiate can convince an aggressor that the status quo power is weak. Thus in 1903 Russia responded to British ex-pressions of interest in negotiating the range of issues that divided them by stiffening her position in the Far East, thus increasing the friction that soon led to the Russo-Japanese War. 54 Whatever the underlying causes of Anglo-German differences before World War I, once the naval race was under way the kaiser interpreted any hesitancy in the British build-ing as indicating that, as he had predicted, the British economy could not stand the strain. As he read a dispatch describing a debate on naval esti- mates in Parliament in which more attention was paid to the costs of the program than to the two-power standard, the kaiser scribbled in the mar-gin: “They respect our firm will, and must bow before the accomplished fact [of the Gennan naval program]! Now further quiet building.” 55 And, as events of the 1930s show, once an aggressor thinks the defenders are weak, it may be impossible to change this image short of war. Unambig-uous indicators of resolve are infrequent, and the aggressor is apt to think that the defender will back down at the last minute. Concessions, made in the incorrect belief that the other is a status quo power are especially apt to be misinterpreted if the other does not under- stand that the state's policy is based on a false image. The spiral theorists have made an important contribution by stressing the serious conse-quences that flow from the common situation when a status quo power does not realize that others see it as aggressive, but they have ignored the other side of this coin. Aggressors often think that their intentions are obvious to others and therefore conclude that any concessions made to them must be the result of fear and weakness. Thus, by the time of Mu-nich, Hitler seems to have believed that the British realized his ambitions were not limited to areas inhabited by Germans and concluded that Chamberlain was conciliatory not because he felt Germany would be sated but because he lacked the resolve to wage a war to oppose Ger-man domination of the Continent. Since Hitler did not see that British policy rested on analysis of German intentions that was altered by the seizure of the non-German parts of Czechoslovakia he could not under-stand why British policy would be different in September 1939 than it had been a year earlier. 56 Even when the adversary aims for less than domination, concessions granted in the context of high conflict will lead to new demands if the adversary concludes that the state's desire for better relations can be ex-ploited. Thus Germany increased her pressure on France in the first Moroccan crisis after the latter assumed a more conciliatory posture and fired the strongly anti-German foreign minister. Similar dynamics pre-ceded the outbreak of the Franco-Prussian war. More recently. the United States responded to Japanese concessions in the fall of 1941 not by making counter-concessions, but by issuing more extreme demands. Less frequently, even a status quo power may interpret conciliation as indicating that the other side is so weak that expansion is possible at little risk. As Herman Kahn notes, prophecies can be self-denying. To trust a person and place him in a position where he can make gains at your expense can awaken his acquisitiveness and lead him to behave in an untrustworthy manner.57 Similarly, a state’s lowered level of arms can tempt the other to raise, rather than lower, its forces. For example, the United States probably would not have tried to increase NATO's canven-tional forces in the 1960s were it not for the discovery that the Soviet Union had fewer troops than had been previously believed, thereby bringing within grasp the possibility of defending West Europe without a resort to nuclear weapons. It is also possible that the Soviets drastically increased their misslle forces in the late 1960s and early 1970s not only because of the costs of remaining in an inferior position but also because they thought the United States would allow them to attain parity.

#### Our predictions are good

**Ulfelder, 11** Jay Ulfelder is Research Director for the Political Instability Task Force, Science Applications International Corporation "Why Political Instability Forecasts Are Less Precise Than We’d Like (and Why It’s Still Worth Doing)" May 5 dartthrowingchimp.wordpress.com/2011/05/05/why-political-instability-forecasts-are-less-precise-than-wed-like-and-why-its-still-worth-doing/

If this is the best we can do, then what’s the point? Well, consider the alternatives. For starters, we might decide to skip statistical forecasting altogether and just target our interventions at cases identified by expert judgment as likely onsets. Unfortunately, those expert judgments are probably going to be an even less reliable guide than our statistical forecasts, so this “solution” only exacerbates our problem. Alternatively, we could take no preventive action and just respond to events as they occur. If the net costs of responding to crises as they happen are roughly equivalent to the net costs of prevention, then this is a reasonable choice. Maybe responding to crises isn’t really all that costly; maybe preventive action isn’t effective; or maybe preventive action is potentially effective but also extremely expensive. Under these circumstances, early warning is not going to be as useful as we forecasters would like. If, however, any of those last statements are false–if responding to crises already underway is very costly, or if preventive action is (relatively) cheap and sometimes effective–then we have an incentive to use forecasts to help guide that action, in spite of the lingering uncertainty about exactly where and when those crises will occur. Even in situations where preventive action isn’t feasible or desirable, reasonably accurate forecasts can still be useful if they spur interested observers to plan for contingencies they otherwise might not have considered. For example, policy-makers in one country might be rooting for a dictatorship in another country to fall but still fail to plan for that event because they don’t expect it to happen any time soon. A forecasting model which identifies that dictatorship as being at high or increasing risk of collapse might encourage those policy-makers to reconsider their expectations and, in so doing, lead them to prepare better for that event. Where does that leave us? For me, the bottom line is this: even though forecasts of political instability are never going to be as precise as we’d like, they can still be accurate enough to be helpful, as long as the events they predict are ones for which prevention or preparation stand a decent chance of making a (positive) difference.