# Round 1 vs. Georgia LS (Neg)

## 1NC

### 1

#### Status quo nat gas doesn’t trigger the link but any increase threatens renewables as a solution to warming.

Reuters, ‘12

[“Gas glut threatens climate battle-IEA,” 9-13-12,

<http://www.reuters.com/article/2012/09/13/energy-iea-gas-idUSL5E8KD4ZJ20120913>, RSR]

A new "golden age of gas" could derail global efforts to fight climate change as indebted governments mull a switch to the cheaper fuel, the International Energy Agency's chief economist said on Thursday. Government subsidies designed to promote renewable energy currently amount to around $70 billion globally, he said. But governments may be tempted to drop them as new shale gas and export facilities of liquefied natural gas (LNG) in east Africa and Australia pressure prices lower. "Governments are feeling more and more uncomfortable to put m oney in renewables especially in the days of austerity, and some governments are cutting their support," Fatih Birol from the West's energy watchdog said at an energy conference in Berne, Switzerland. "The availability of cheap or lower gas prices are putting additional pressure on renewable energies," he added. Currently, natural gas prices of many exporters such as Russia, Norway and Qatar are high because they are sold under long-term contracts that are linked to oil, but suppliers are coming under increasing pressure by customers to reduce prices or allow more flexible pricing based on movements in the freely traded spot gas markets. But Birol said that new supplies will undermine their ability to charge high prices in the long term. In North America, a boom in unconventional shale gas exploration has led to sharp drops in domestic natural gas prices and the U.S. is expected to begin exporting LNG by 2015, putting pressure on global gas prices and established pipeline suppliers such as Russia's Gazprom and Norway's Statoil. "You will see more and more, even in Europe, gas available outside of major current gas exporters which can put downward pressure on prices and give more flexibility on importers to negotiate long-term contracts," he later told Reuters. Other analysts, however, say that shale gas exploration in Europe will not be big enough to break the dominance of established pipeline suppliers, and that the development of renewables will therefore remain important in order to meet energy demand and Europe's emmissions reduction targets. Birol said that any reduction in investment in renewable energy would increase the risk of an increase in global temperatures by 6 degree Celsius this century, describing the current trend as "catastrophic". "If there are no urgent and bold policies put in place the door to a 2 degrees trajectory, the door to a normal life for us and for our children, will be closed and will be closed forever," he said.

#### Warming leads to extinction.

Sify ‘10 (Sify, Sydney newspaper citing Ove Hoegh-Guldberg, professor at University of Queensland and Director of the Global Change Institute, and John Bruno, associate professor of Marine Science at UNC (Sify News, “Could unbridled climate changes lead to human extinction?”, <http://www.sify.com/news/could-unbridled-climate-changes-lead-to-human-extinction-news-international-kgtrOhdaahc.html>)

The findings of the comprehensive report: 'The impact of climate change on the world's marine ecosystems' emerged from a synthesis of recent research on the world's oceans, carried out by two of the world's leading marine scientists. One of the authors of the report is Ove Hoegh-Guldberg, professor at The University of Queensland and the director of its Global Change Institute (GCI). 'We may see sudden, unexpected changes that have serious ramifications for the overall well-being of humans, including the capacity of the planet to support people. This is further evidence that we are well on the way to the next great extinction event,' says Hoegh-Guldberg. 'The findings have enormous implications for mankind, particularly if the trend continues. The earth's ocean, which produces half of the oxygen we breathe and absorbs 30 per cent of human-generated carbon dioxide, is equivalent to its heart and lungs. This study shows worrying signs of ill-health. It's as if the earth has been smoking two packs of cigarettes a day!,' he added. 'We are entering a period in which the ocean services upon which humanity depends are undergoing massive change and in some cases beginning to fail', he added. The 'fundamental and comprehensive' changes to marine life identified in the report include rapidly warming and acidifying oceans, changes in water circulation and expansion of dead zones within the ocean depths. These are driving major changes in marine ecosystems: less abundant coral reefs, sea grasses and mangroves (important fish nurseries); fewer, smaller fish; a breakdown in food chains; changes in the distribution of marine life; and more frequent diseases and pests among marine organisms. Study co-author John F Bruno, associate professor in marine science at The University of North Carolina, says greenhouse gas emissions are modifying many physical and geochemical aspects of the planet's oceans, in ways 'unprecedented in nearly a million years'. 'This is causing fundamental and comprehensive changes to the way marine ecosystems function,' Bruno warned, according to a GCI release. These findings were published in Science.

### 2

#### The United States federal government should fully fund the development and deployment of sea basing.

#### Sea basing solves naval power – increased ship building and a shift to a more flexible naval posture

Koplovsky 6 PhD-Naval War College

[Michael, NAVAL WAR COLLEGE, Newport, R.I., PRECIPITATING THE INEVITABLE: THE SURPRINGLY BENIGN IMPACT OF LOSING BASING RIGHTS IN BAHRAIN, p. 13-18, http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA463412&Location=U2&doc=GetTRDoc.pdf]

BASES?!? WE DON’T NEED NO STINKIN’ BASES!

**Large, permanent, forward U.S. bases (MOBs) are falling out of favor**. Since the end of the Cold War, the United States has been endeavoring to “review, reduce, and realign”24 its presence abroad. **Both the February 2006 Quadrennial Defense Review and the September 2004 Global Defense Posture report reflected the Pentagon’s expectation of a “more diffuse and unpredictable” future** environment. The reports call for power projection by expeditionary forces deployed by strategic airlift or sealift combined with “a light screen of forward deployed forces rotating through a broader portfolio of temporary bases.”25 These temporary bases would include training hubs and prepositioning sites as well as a network of CSLs – host nation facilities where the United States negotiates contingency access but would not maintain presence. CSLs could be spread across dozens of nations. Forward deployed units shuttling or rotating through multiple bases during training tours (often using pre-positioned equipment) would thus afford operational factor advantages of MOBs. This arrangement will appear temporary, but in fact maintain a more or less constant U.S. deterrent and operational presence.26¶ According to Richard Sokolosky, **a more flexible posture addresses the U.S. need to “diversify its dependence on regional basing and forward** presence as well as reduce the visibility and predictability of its forward deployed forces.” Sokolosky’s 2002 National Defense University Institute for Strategic Studies report concluded that the United States must diversify deployment patterns, take advantage of new basing concepts (such as sea-basing and CSLs), expand pre-positioning of equipment, and concentrate efforts on multilateral cooperation. The study recommends the U.S. military reduce visibility and predictability of fixed deployments in the Persian Gulf by adopting a rotational posture characterized by regular movements of units through a wider variety of training and exercise locations. This approach should maintain forward presence in operational factor terms, while increasing force protection. Sokolosky admits, however, that this idea relies on improved U.S. lift and rapid deployment capabilities.27¶ Former Commander Southern Command General Paul Gorman has advocated an “Echeloning Rearward” posture characterized by self-sustaining units which would leave their non-essential personnel and equipment aboard ships or in the United States. This idea differs from pre-positioning, which requires dual sets of equipment and a significant “footprint” in a host country. Gorman acknowledges that Echeloning Rearward places enormous burdens on communication and transportation links, but, he claims, it was used to great effect in Honduras in the 1980s.28 Effective power projection (i.e. factor force) from rear-echeloned forces in continental United States to the Persian Gulf, half way around the world, would surely be more challenging than to Latin America, however.¶ **Recognizing the vulnerability of permanent basing arrangements** -- to terrorist or other enemy attack, capricious and unreliable “allies,” or even denial by opposing forces -- **some have argued for sea-basing**. Sea-basing -- the development of large floating platforms and multi-ship structures that could serve as forward operation bases, prepositioning depots, and command and control centers -- is an attractive response **to limited access to overseas bases** (see figures above and below). **This idea** -- first mooted three decades ago -- **is supported in academic circles and among U.S. Navy and U.S. Marine Corps planners**. Middle East defense analyst Michael Knights believes a reduction of the U.S. military presence in the Persian Gulf could be compensated through visiting battalion sized land forces and air wings. These forces would participate in training and combined exercises. Knights characterizes this new evolution in basing and forward deployment as “enduring access, episodic employment.”29 **The Pentagon’s confidence that it can deploy forces within 24 hours anywhere in the world** (see chart/map above) **should deter aggressors, reassure allies, and comfort operational commanders.** For now, only small, light units can be transported into an operational theater that quickly. Faster and more sea- and airlift capability, particularly trans-oceanic assets, would be needed. The 2006 Quadrennial Defense Review calls for increased airlift appropriations and development of Joint High Speed Vessels (JHSVs) (see picture below) for intra-theater transport.30

### 3

#### 1. CIR will pass now

Central Florida News 1/6 (Will 113th Congress increase chance for immigration reform?, http://www.cfnews13.com/content/news/cfnews13/news/article.html/content/news/articles/cfn/2013/1/6/will\_113th\_congress\_.html)

President Barack Obama has vowed that immigration reform will be a top priority for his administration this year and may get some help.¶ The 113th Congress is made up of the largest class of Latino members ever.¶ But, the big question is, just what is likely to be part of the overhaul?¶ "You're at the center of this nation's future," said Vice President Joe Biden at a ceremony to welcome the largest number of Latinos in Congress ever.¶ It’s a critical mass that could help efforts to pass sweeping changes to the immigration system.¶ It's a top priority for the president, who won more than 70 percent of the Hispanic vote in November.¶ After the election, House Speaker John Boehner signaled Republicans could support comprehensive action on immigration.¶ "I'm not talking about 3,000 page bill,” Boehner said. “I'm talking about a common sense step-by-step approach that will secure our borders, allow us to enforce the laws and fix a broken immigration system."¶ Democratic Congressman Luis Gutierrez leads the immigration task force for the Hispanic caucus.¶ "When you deal with the fiscal cliff, this is where the Congress is at -- far apart. Guns -- far apart. On immigration, much closer. Have we all signed on the dotted line, no. No there's a lot of work to be done. But the commitment is there to getting the work done," Gutierrez said.¶ So what might comprehensive legislation look like?¶ The president said it should include measures to beef up border security, punish companies that purposely hire undocumented workers and give the roughly 11 million undocumented immigrants here a way to obtain legal status.

#### 2. Obama’s political capital is key.

Hesson 1/2 (Ted, Immigration Editor at ABC News, Analysis: 6 Things Obama Needs To Do for Immigration Reform, http://abcnews.go.com/ABC\_Univision/News/things-president-obama-immigration-reform/story?id=18103115#.UOTq55JIAho)

On Sunday, President Barack Obama said that immigration reform is a "top priority" on his agenda and that he would introduce legislation in his first year.¶ To find out what he needs to do to make reform a reality, we talked to Lynn Tramonte, the deputy director at America's Voice, a group that lobbies for immigration reform, and Muzaffar Chishti, the director of the New York office of the Migration Policy Institute, a think tank. Here's what we came up with.¶ 1. Be a Leader¶ During Obama's first term, bipartisan legislation never got off the ground. The president needs to do a better job leading the charge this time around, according to Chishti. "He has to make it clear that it's a high priority of his," he said. "He has to make it clear that he'll use his bully pulpit and his political muscle to make it happen, and he has to be open to using his veto power." His announcement this weekend is a step in that direction, but he needs to follow through.¶ 2. Clear Space on the Agenda¶ Political priorities aren't always dictated by the folks in D.C., as the tragic Connecticut school shooting shows us. While immigration had inertia after the election, the fiscal cliff and gun violence have been the most talked about issues around the Capitol in recent weeks. The cliff could recede from view now that Congress has passed a bill, but how quickly the president can resolve the other issues on his agenda could determine whether immigration reform is possible this year. "There's only limited oxygen in the room," Chishti said.

#### 3. Obama can’t win on natural gas policy – will make everyone angry.

Politico, ‘12

[“When it comes to natural gas, Obama can’t win”, <http://www.politico.com/news/stories/0512/76402_Page2.html>, RSR]

President Barack Obama talked up natural gas in his State of the Union address, his top aides have held dozens of meetings with natural gas industry leaders and his administration has given the industry what it wanted on two big regulatory issues. What he’s gotten in return: a giant headache. Industry backers have hammered away at virtually all of the White House’s rule-making efforts while pouring millions of dollars into campaigns fighting Obama’s reelection. At the same time, environmentalists and even some Republicans have complained that natural gas is too cozy with the White House. The gas industry’s had plenty of access. This year, the White House Office of Management and Budget held at least a dozen meetings on fracking with senior officials from companies like ExxonMobil, Anadarko and BP, as well as Republican congressional staffers, tribal leaders and industry lobby shops. But the White House seems unable to decide how close it wants to be to the industry. Obama and Cabinet officials like Energy Secretary Steven Chu, Interior Secretary Ken Salazar and EPA chief Lisa Jackson consistently praise natural gas. And recent headlines have trumpeted the newfound closeness; Bloomberg, for instance, went with “Obama Warms to Energy Industry by Supporting Natural Gas” while National Journal chose: “White House’s Coziness With Big Oil Irks GOP.” White House energy adviser Heather Zichal insisted Monday that the relationship isn’t that simple. “It’s safe to say the notion that we rolled out the welcome mat or have this hunky-dory relationship where we’re all holding hands and singing ‘Kumbaya’ is not exactly where we’re at today,” Zichal said at an American Petroleum Institute event.

#### 4. Immigration reform is key to food security

Fitz 12 (Marshall Fitz is the Director of Immigration Policy at the Center for American Progress, Time to Legalize Our 11 Million Undocumented Immigrants, November 14th, http://www.americanprogress.org/issues/immigration/report/2012/11/14/44885/time-to-legalize-our-11-million-undocumented-immigrants/)

Nowhere is the tension between immigrant labor and the economy more obvious than in agriculture. By most estimates, undocumented immigrants make up more than half of the workers in the agriculture industry. Likewise the U.S. Department of Agriculture has estimated that each farm job creates three “upstream” jobs in professions such as packaging, transporting, and selling the produce, meaning that what happens in the agricultural sector affects the economy as a whole.¶ Agriculture is particularly susceptible to the whims of the labor market, since crops become ripe at a fixed time and must be picked quickly before they rot. Migrant laborers often travel a set route, following the growing season as it begins in places such as Florida and works its way north. Disrupting this flow of pickers can be devastating to local economies and the nation’s food security.¶ After the passage of Georgia’s anti-immigrant law, H.B. 87, for example, the Georgia Agribusiness Council estimated that the state could lose up to $1 billion in produce from a lack of immigrant labor. A survey of farmers conducted by the Georgia Department of Agriculture found 56 percent of those surveyed were experiencing difficulty finding workers—a devastating blow to the state. Even a program by Gov. Nathan Deal (D-GA) to use prison parolees to fill the worker shortage quickly fell apart, with most walking off the job after just a few hours.¶ Creating a process for legalizing these undocumented workers would help stabilize the agricultural workforce and enhance our nation’s food security. It would also diminish the incentive of states to go down the economically self-destructive path that Georgia, Alabama, Arizona, and others have pursued.

#### 5. Food shortages lead to extinction.

Brown, founder of the Worldwatch Institute and the Earth Policy Institute, ‘9

[Lester, “Can Food Shortages Bring Down Civilization?” Scientific American, May]

The biggest threat to global stability is the potential for food crises in poor countries to cause government collapse. Those crises are brought on by ever worsening environmental degradation One of the toughest things for people to do is to anticipate sudden change. Typically we project the future by extrapolating from trends in the past. Much of the time this approach works well. But sometimes it fails spectacularly, and people are simply blindsided by events such as today's economic crisis. For most of us, the idea that civilization itself could disintegrate probably seems preposterous. Who would not find it hard to think seriously about such a complete departure from what we expect of ordinary life? What evidence could make us heed a warning so dire--and how would we go about responding to it? We are so inured to a long list of highly unlikely catastrophes that we are virtually programmed to dismiss them all with a wave of the hand: Sure, our civilization might devolve into chaos--and Earth might collide with an asteroid, too! For many years I have studied global agricultural, population, environmental and economic trends and their interactions. The combined effects of those trends and the political tensions they generate point to the breakdown of governments and societies. Yet I, too, have resisted the idea that food shortages could bring down not only individual governments but also our global civilization. I can no longer ignore that risk. Our continuing failure to deal with the environmental declines that are undermining the world food economy--most important, falling water tables, eroding soils and rising temperatures--forces me to conclude that such a collapse is possible. The Problem of Failed States Even a cursory look at the vital signs of our current world order lends unwelcome support to my conclusion. And those of us in the environmental field are well into our third decade of charting trends of environmental decline without seeing any significant effort to reverse a single one. In six of the past nine years world grain production has fallen short of consumption, forcing a steady drawdown in stocks. When the 2008 harvest began, world carryover stocks of grain (the amount in the bin when the new harvest begins) were at 62 days of consumption, a near record low. In response, world grain prices in the spring and summer of last year climbed to the highest level ever.As demand for food rises faster than supplies are growing, the resulting food-price inflation puts severe stress on the governments of countries already teetering on the edge of chaos. Unable to buy grain or grow their own, hungry people take to the streets. Indeed, even before the steep climb in grain prices in 2008, the number of failing states was expanding [see sidebar at left]. Many of their problem's stem from a failure to slow the growth of their populations. But if the food situation continues to deteriorate, entire nations will break down at an ever increasing rate. We have entered a new era in geopolitics. In the 20th century the main threat to international security was superpower conflict; today it is failing states. It is not the concentration of power but its absence that puts us at risk.States fail when national governments can no longer provide personal security, food security and basic social services such as education and health care. They often lose control of part or all of their territory. When governments lose their monopoly on power, law and order begin to disintegrate. After a point, countries can become so dangerous that food relief workers are no longer safe and their programs are halted; in Somalia and Afghanistan, deteriorating conditions have already put such programs in jeopardy.Failing states are of international concern because they are a source of terrorists, drugs, weapons and refugees, threatening political stability everywhere. Somalia, number one on the 2008 list of failing states, has become a base for piracy. Iraq, number five, is a hotbed for terrorist training. Afghanistan, number seven, is the world's leading supplier of heroin. Following the massive genocide of 1994 in Rwanda, refugees from that troubled state, thousands of armed soldiers among them, helped to destabilize neighboring Democratic Republic of the Congo (number six).Our global civilization depends on a functioning network of politically healthy nation-states to control the spread of infectious disease, to manage the international monetary system, to control international terrorism and to reach scores of other common goals. If the system for controlling infectious diseases--such as polio, SARS or avian flu--breaks down, humanity will be in trouble. Once states fail, no one assumes responsibility for their debt to outside lenders. If enough states disintegrate, their fall will threaten the stability of global civilization itself.

### 4

#### The rapacious drive to secure energy is a symptom of “challenging-forth,” a mindset that renders everything as disposable. Only through rejecting challenging forth and embracing bringing forth can we avoid this hollowing out of Being

Waddington 5 A Field Guide to Heidegger: Understanding 'The Question concerning Technology' more by David Waddington Educational Philosophy and Theory, Vol. 37, No. 4, 2005 http://concordia.academia.edu/DavidWaddington/Papers/538046/A\_Field\_Guide\_to\_Heidegger\_Understanding\_The\_Question\_concerning\_Technology

Most essays on technology focus primarily on practical issues surrounding the use of particular technologies . Heidegger’s essay, however, does not—instead, it focuses on the ways of thinking that lie behind technology. Heidegger (1977, p. 3) thinks that by coming to understand these ways of thinking, humans can enter into a ‘free relationship’ with technology. After dismissing the conventional account of technology, which supposedly states that technology is simply a means to an end, Heidegger commences a discussion on ancient craftsmanship. He suggests that the ancient craftsmanship involves the four Aristotelian causes: material, formal, ﬁnal, and efﬁcient. Intuitively, one might think that the efﬁcient cause of a given craft-item (the craftsman) was the most signiﬁcant of the four. However, although the craftsman has an important role in that she unites the four causes by considering each of them carefully, each of the four causes is equally co-responsible for the particular craft-item that is produced. Heidegger comments, ‘The four ways of being responsible bring something into appearance. They let it come forth into presencing’ (1977, p. 9). Appropriately enough, Heidegger names this process bringing-forth . Notably, bringing-forth is not merely a descriptive genus under which the four causes are subsumed—rather, it is a uniﬁed process, ‘a single leading-forth to which [each of the causes] is indebted’ (Lovitt, 1972, p. 46).Heidegger writes that bringing-forth ‘comes to pass only insofar as something concealed comes into unconcealment’ (1977, p. 11). Thus, instead of the craft-item being created by the craftsman, as one would think, it was revealed or unconcealed .In ‘The Thing’, Heidegger comments on the making of a jug, The jug is not a vessel because it was made; rather, the jug had to be made because it is this holding vessel. The making … lets the jug come into its own. But that which in the jug’s nature is its own is never brought about by its making. (1971, p. 168)Clearly, revealing/unconcealing in the mode of bringing-forth contains strong hints of Platonism. Bringing-forth is the mode of revealing that corresponds to ancient craft. Modern technology, however, has its own particular mode of revealing, which Heidegger calls challenging-forth . Thinking in the mode of challenging-forth is very different from thinking in the mode of bringing-forth: when challenging-forth, one sets upon the elements of a situation both in the sense of ordering (i.e. setting a system upon) and in a more rapacious sense (i.e. the wolves set upon the traveler and devoured him). In bringing-forth, human beings were one important element among others in the productive process; in challenging-forth, humans control the productive process. Efﬁciency is an additional important element of thinking in the mode of challeng-ing forth; the earth, for example, is set upon to yield the maximum amount of ore with the minimum amount of effort. Essentially, challenging-forth changes the way we see the world—as Michael Zimmerman pointedly remarks, ‘To be capable of transforming a forest into packaging for cheeseburgers, man must see the forest not as a display of the miracle of life, but as raw material, pure and simple’ (1977, p. 79).Production in the mode of challenging-forth reveals objects that have the status of standing-reserve . Objects that have been made standing-reserve have been reduced to disposability in two different senses of the word: (1) They are disposable in the technical sense; they are easily ordered and arranged. Trees that once stood chaotically in the forest are now logs that can be easily counted, weighed, piled, and shipped. (2) They are also disposable in the conventional sense; like diapers and cheap razors, they are endlessly replaceable/interchangeable and have little value. For the most part, challenging things forth into standing-reserve is not a laudable activity, and thus it makes sense to wonder what drives human beings to think in this way. Heidegger’s answer to this motivational question is unconventional— instead of suggesting that the origins of this motivation are indigenous to human beings, he postulates the existence of a phenomenon that ‘sets upon man to order the real as standing-reserve’ (1977, p. 19). Heidegger calls this mysterious phenomenon enframing ( Ge-stell in German). The word ‘Ge-stell’ gathers together several meanings of the -stellen family of German verbs: in Ge-stell, humans are ordered ( bestellen ), commanded ( bestellen ), and entrapped ( nachstellen ) (Harries 1994,p. 229). Heidegger thinks that our default state is that of being trapped by Ge-stell; this is what he means when he writes, ‘As the one who is challenged forth in this way, man stands within the essential realm of [Ge-stell]. He can never take up a relationship to it only subsequently’ (1977, p. 24; Sallis, 1971, p. 162). According to Heidegger (1977, p. 25), there are different ‘ordainings of destining’ for human beings. Although the default destining is that of Ge-stell, it is possible to choose an alternate road. Heidegger thinks that human beings have been granted the special role of ‘Shepherds of Being’—we have been granted the power to reveal the world in certain ways (Ballard, 1971, p. 60). Trapped in Ge-stell, we tend to reveal things in the mode of challenging-forth, but we can also choose to reveal things in the mode of bringing-forth. Heidegger comments, ‘Placed between these possibilities, man is endangered from out of destining’ (1977, p. 26). However, by carefully considering the ways of thinking that lie behind technology, we can grasp the ‘saving power’. We can realize that we, the Shepherds of Being, have a choice : we can bring-forth rather than challenge-forth. Thus, once we understand the thinking behind technology, we become free to choose our fate—‘… we are already sojourning in the open space of destining’ (Heidegger, 1977, p. 26).

### Solvency

#### Natural gas wells declining too fast- nowhere close to sufficient reserves in the long term

The Oil Drum, 2012,

[2-8, “After The Gold Rush: A Perspective on Future U.S. Natural Gas Supply and Price,” http://www.theoildrum.com/node/8914]

Several of the more mature shale gas plays are either in decline or appear to be approaching peak production. Exhibit 5 shows that total Barnett Shale production is approximately 5.7 Bcf per day (Bcf/d) and cumulative gas production is more than 10 trillion cubic feet (Tcf) of gas. It also shows that production may be approaching a peak at current gas prices despite the constant addition of new wells.¶ Exhibit 5. Barnett Shale Total Production. Source: HPDI.¶ The Haynesville Shale surpassed the Barnett during 2011 as the most productive gas play in North America, with present daily rates of almost 7 Bcf/d and cumulative production of 3.5 Tcf (Exhibit 6).¶ ¶ This play is most responsible for the current over-supply of gas with the average well producing 3.3 million cubic feet per day (Mcf/d) compared to only 0.4 Mdf/d in the Barnett. It is too early to say for sure, but the Haynesville Shale may also be approaching peak production.¶ The Marcellus Shale is presently producing 2.4 Bcf/d and has produced a total of about 0.8 Tcf (Exhibit 7).¶ ¶ In this play, production shows no sign of leveling off, as it does in the Barnett and Haynesville, and production in the Fayetteville Shale may also be approaching a peak (Exhibit 8).¶ ¶ The Woodford Shale is already in decline (Exhibit 9).¶ ¶ If some existing shale gas plays are approaching peak production after only a few years since the advent of horizontal drilling and multi-stage hydraulic fracturing, what is the basis for long-term projections of abundant gas supply?¶ What Publicly Available Data Indicates About Supply¶ Data for this analysis is from publicly available sources provided by government agencies such as the Texas Railroad Commission (TX RRC), the Louisiana Department of Natural Resources (LA DNR), the Oklahoma Corporation Commission, and the Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE). This data is available on web sites maintained by these agencies but is also collected and compiled for a fee by service companies, specifically IHS and HPDI (DI Desktop). All of these sources provide access to individual well, field, county, and state production.¶ The EIA provides valuable data on oil and gas production but not at finer than state level, and state production is only current through 2010. EIA gas production data differs somewhat from state data and from the data collected by service companies, and is generally more optimistic. The EIA uses a model to calculate gas production based on a sample of large gas producers, and then applies a correction to reconcile production with underground storage volumes.¶ Exhibit 10 shows the discrepancy for Texas gas production between EIA and TX RRC data.¶ ¶ The October 2012 difference was 1.6 Bcf/d. Although TX RRC Data indicates that Texas gas production has declined each month since March 2011, EIA reports show consistent increases. This difference is important because Texas produces 28% of U.S. gas supply (Exhibit 11). Similar differences have been noted for other major gas-producing regions. It should be noted that the EIA data in Exhibit 11 represents marketed production while the TX RRC data shows total gas production.¶ ¶ These accounts should have different values but also should have similar trends. The trends are similar through March 2011 but then diverge producing the present noted variance (The November difference, not shown on the graph, is 2.6 Bcf/d).¶ These accounts should have different values but also should have similar trends. The trends are similar through March 2011 but then diverge producing the present noted variance (The November difference, not shown on the graph, is 2.6 Bcf/d).¶ We have studied Texas production reporting and find that it is generally reliable and accurate in areas that we follow closely in our oil and gas exploration and production business. Revisions are common for the first and second most recent months of production but are not statistically significant at the state or field level. Data going back three reporting months is reliable. Studies of other major gas-producing states show similar results. Our intent to is to point out the differences between state and EIA data, and to suggest that EIA data is not particularly useful to track individual play or some state production on a current basis.¶ Texas, Louisiana, Wyoming, Oklahoma, Gulf of Mexico Outer Continental Shelf, and New Mexico account for roughly 75% of U.S. natural gas supply and, therefore, provide a useful proxy for total U.S gas production. Exhibits 12 through 17 show natural gas production for these regions.¶ All of these major gas-producing areas except Louisiana are in decline. This is largely because non-shale production is declining rapidly since little new drilling in these reservoirs in recent years has occurred. While shale production volumes and initial rates are impressive (Exhibit 18), much of this new production is merely substituting for depleting conventional gas reserves.

#### No human capital—50% of workforce going to retire.

Ebinger et al., ‘12

[Charles, Kevin Massy and Govinda Avasarala, Brookings Energy Security Initiative Policy Brief, "Liquid Markets: Assessing the Case for US Exports of Liquefied Natural Gas" www.brookings.edu/~~/media/research/files/reports/2012/5/02%20lng%20exports%20ebinger/0502\_lng\_exports\_ebinger.pdf]

Human capital in the unconventional oil and gas development sectors is also in short supply. According to the National Petroleum Council (NPC), there has been a 75 percent decrease in petrochemical-related course enrollment since 1982 in the United States. 37 Moreover, within the next ten years, about 50 percent of the workforce in this industry will be eligible for retirement. The high demand for petroleum engineers, reflected in the high salaries of recent graduates in the field, is set to continue, with the NPC warning of a “considerable human resource challenge” in the oil and gas industry. 38 Faculty at leading universities with petroleum-engineering departments point to a lack of research and development (R&D) funding, which they say is negatively affecting their capacity to adequately train people for jobs in the hydrocarbons sector. While some of the shortfall in public R&D funding has been made up by private-sector support, academics note the frequent mismatch between the specific needs of individual companies and the long-term needs of the sector. Even if sufficient funding for R&D and training is now provided, there may also be a time lag before there is an adequate supply of petroleum engineers in the market.

#### No solvency - companies ignoring 72% of current lease potential.

Bronson, ‘12

[Mackenzie, 10-23-12, Energy policy team at the Center for American Progress, "Use it or lose it: report shows oil and gas companies sitting on thousands of unused leases"thinkprogress.org/climate/2012/10/23/1072351/use-it-or-lose-it-report-shows-oil-and-gas-companies-sitting-on-thousands-of-unused-leases/, RSR]

Mitt Romney, the American Petroleum Institute, and other fossil fuel allies constantly agitate to open more federal lands and waters to drilling, claiming that they aren’t getting enough access. But a new report from Representative Edward Markey titled “Use It or Lose It” finds that 131 oil and gas companies have 3,684 idle leases in the Gulf of Mexico alone. The Big Five oil companies — BP, Chevron, Shell, ExxonMobil, ConocoPhillips — are responsible for 40 percent of the 20.7 million acres “not undergoing exploration, development, or production” in the region. According to the report, a majority of offshore leases and onshore leases are not being used by oil companies: Oil companies have failed to explore, develop or produce these leases while simultaneously calling on Congress and the Interior Department to lease more federal offshore lands. This issue, which has been hotly debated in recent years, came up in last Tuesday’s presidential debate when Republican nominee Mitt Romney wrongly accused President Obama of curtailing oil and gas drilling off America’s coasts and on public land. In fact, oil and gas production from public lands is higher than it was during the last three years of the George W. Bush administration, and the Obama administration is trying to further boost production through “use it or lose it” policies for idle federal drilling leases. Oil and gas companies are currently not using 72 percent of the total acres leased offshore and 56 percent of the total acres leased onshore.

### LNG Exports

#### US wouldn’t export gas – no export facilities.

Levi, senior fellow at CFR, 2012,

[June, Michal, David M. Rubenstein Senior Fellow for Energy and the Environment. Director of the Program on Energy Security and Climate Change Council on Foreign Relations. Michael is a member of the Strategic Advisory Board for NewWorld Capital LLC, a private equity firm focused on environmental opportunities, and a member of the External Advisory Board to the Princeton University Carbon Mitigation Initiative (CMI). He holds a Bachelors of Science in mathematical physics from Queen’s University, an MA in physics from Princeton University and a Ph.D. in war studies from the

University of London. “A Strategy for U.S. Natural Gas Exports,” <http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf>]

There is a real possibility that prices in the United States, ¶ Europe, and Asia will continue to diverge, creating ¶ opportunities for U.S. LNG exports. Yet exporting ¶ natural gas overseas is not a straightforward endeavor. Gas must ¶ be liquefied before it can be transported in specially built ships ¶ and then regasified at its destination. Building liquefaction ¶ facilities in particular can cost as much as $4 billion for each ¶ billion cubic feet of daily export capacity—several times the ¶ cost of building an import terminal of similar scale (Ratner ¶ et al. 2011). Investment on this scale can be risky: if natural ¶ gas price spreads collapse, multibillion-dollar investments can ¶ quickly become worthless. Adding to the dangers involved in ¶ building any terminal is regulatory risk associated with safety ¶ and security concerns.

#### US won’t export nat gas - distant market prices undercut profits

Levi, senior fellow at CFR, 2012,

[June, Michal, David M. Rubenstein Senior Fellow for Energy and the Environment. Director of the Program on Energy Security and Climate Change Council on Foreign Relations. Michael is a member of the Strategic Advisory Board for NewWorld Capital LLC, a private equity firm focused on environmental opportunities, and a member of the External Advisory Board to the Princeton University Carbon Mitigation Initiative (CMI). He holds a Bachelors of Science in mathematical physics from Queen’s University, an MA in physics from Princeton University and a Ph.D. in war studies from the

University of London. “A Strategy for U.S. Natural Gas Exports,” <http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf>]

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.

#### Best case scenario doesn’t have us exporting until 2015

Levi, senior fellow at CFR, 2012,

[June, Michal, David M. Rubenstein Senior Fellow for Energy and the Environment. Director of the Program on Energy Security and Climate Change Council on Foreign Relations. Michael is a member of the Strategic Advisory Board for NewWorld Capital LLC, a private equity firm focused on environmental opportunities, and a member of the External Advisory Board to the Princeton University Carbon Mitigation Initiative (CMI). He holds a Bachelors of Science in mathematical physics from Queen’s University, an MA in physics from Princeton University and a Ph.D. in war studies from the

University of London. “A Strategy for U.S. Natural Gas Exports,” <http://www.hamiltonproject.org/files/downloads_and_links/06_exports_levi.pdf>]

The approved facilities, once fully built, could ¶ process 10.9 billion cubic feet of exports each day, and, as of ¶ May 2012, applications for another 2.8 billion cubic feet of ¶ daily exports were pending (DOE 2012). ¶ 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.

#### Scenario one: Japan

#### US – Japan relations are strong and resilient – rooted in common interest

AFP 10 (“US, Japan relations unaffected by Prime Minister's resignation,” Agence France Presse, June 2, 2010, http://www.google.com/hostednews/afp/article/ALeqM5jBNtvewQHZM2q35LVUaMKfsQ9ljg)

WASHINGTON — The White House said Wednesday Japan was one of America's "best friends" in the world, and that the relationship would not be adversely affected by the departure of Prime Minister Yukio Hatoyama. Hatoyama stepped down after a brief tenure disrupted by a political and diplomatic row over a US air base in Japan, after taking office vowing to forge a more equal relationship with Washington."We respect the Japanese political process and Prime Minister Hatoyama?s decision to step down," White House spokesman Robert Gibbs said in a statement. "The selection of Japan's next prime minister is a matter for the Japanese people and political process. "The US-Japan bilateral relationship is very strong and deeply rooted in our common interests and values. "Our alliance has flourished under each Japanese prime minister and US president for the past half century and will continue to strengthen in the years to come," Gibbs said. Earlier, Gibbs's deputy Bill Burton told reporters that Japan was "one of our best friends in the world and that alliance is not going to change as a result of any change in leadership in that country." "We'll watch the political process take its course and be waiting like everybody else to see who the next prime minister will be," Burton said on Air Force One as Obama flew to Pittsburgh.

#### No Asian military conflict – economic interdependence increases the costs, threats to economic growth outweigh, asian countries value prosperity over national prestige – empirically proven, and no asian country can build up militarily to challenge each other.

Muthia Alagappa, Distinguished Senior Fellow at the East-West Center, 2008, “The Long Shadow”

Despite this, the role of force in Asian international politics is becoming more limited due to a number of developments. First, the traditional need for force to protect the territorial integrity of states has declined in importance. With Iesv exceptions (Taiwan, North Korea, and South Korea) state survival is not problematk. The Asian political map is for the most part Internationally accepted. although some boundaries are still in dispute. Such disputes are being settled through negotiations or shelved in the interest of promoting better bilateral relations (Wang 2003) Second, the political, diplomatic. strategic, military, and economic cost of using force has increased dramatically. Over the past several decades, a normative framework has developed in Asia that delegitimizes the use of force to invade and occupy another country or to annex territory that is internationally recognized as belonging to another state. The use of force to invade and occupy another country or to annex territory will incur high costs. For example. if’China were to invade Taiwan without serious provocation, it can expect civil and military resistance in Taiwan, U.S. military intervention, international condemnation, and a setback to its image as a responsible power. Such action would also incur huge economic costs resulting from international and domestic disruptions. Unless military action were swift and surgical, it would also result in substantial physical damage that would only increase as Asian countries continued to modernize and urbanize. Further. military action that is not successful can have negative domestic political consequences as well. Third. most Asian countries benefit from participation in the regional and global capitalist marketplace. The 1997—98 financial crisis sensitized Asian countries to the vagaries and negative consequences of globalization but did not turn them away from liberalization and participation in the global economy. Preserving international stability has become a key goal of major powcrs. Economic growth. modernization, and growing economic interdependence have increased the cost of the force option and restrained the behavior of states even when major political issues arc at stake, as for example in cross-Strait relations. Economic interdependence does not close the force option in all cases, hut the high costs of economic disruption can restrain military action, Further, force is no longer relevant for the attainment of economic goals such as access to resources, labor, and markets, Energy security, (‘or example, is sought through the market, national stockpiling. and sourcing arrangements. Finally, resolution of existing disputes through the use of force is not practical. Except for the United States, none of the Asian states can marshall the necessary military power to impose a settlement by force. The experience in Iraq and Afghanistan suggests that even the United States suffers limitations and that the use of force carries much risk. These considerations explain the reluctance of the United States to undertake preventive action against North Korea, the reluctance of China w carry out its threat of using force to unify Taiwan with the PRC, and the continuing stalemate in the India-Pakistan confiict over Kashmir. Force may still be used iii these cases, but the attendant strategic, political, diplomatic, and economic costs and risks are high.

#### Scenario two: Russia

#### Russia’s gas dominance of Europe is the lifeblood of its economy - oil can’t compensate.

Wright, Contributor to the Pipeline and Gas Journal, ‘9

[Lindsay, Pipeline and Gas Journal, August 2009, “PIPELINE POLITICS: RUSSIA’S NATURAL GAS DIPLOMACY”, Vol. 236 No. 8]

Natural resources are the lifeblood of the Russian economy and Siberia’s riches excite envy and awe from onlooking countries. Revenues from exports of oil and gas made possible one of the greatest economic comeback stories in recent memory. From the wreckage of the fall of communism and the subsequent currency collapse of 1998, an economic and political powerhouse has emerged. Russia is emboldened by renewed wealth and has no qualms about using its considerable clout in the energy industry to twist the arms of its neighbors. Some 157,000 km of natural gas pipelines serving more than 30 export markets are both an engine of economic growth and a powerful political sword. In the privatization frenzy of post-Soviet reconstruction, many of Russia’s energy resources were sold off to individuals and corporations, often at cut-rate prices. However, under President Putin, energy assets were systematically and strategically brought back under state control. Deeply embedded in the Russian psyche is a belief that politics is a zero-sum game, and advancing “national interests” is the chief driver behind political decisions. Casualties are not only tolerated, they are expected. In the energy business, this mentality effectively gives Gazprom, the majority state-owned natural gas producer and distributer, liberty to take politically significant actions under the mantle of a legitimate business activity. The Kremlin and Gazprom have intertwining purposes and interests. The company produces more than 90% of Russia’s natural gas and provides the state with roughly one quarter of its total tax revenue, in addition to owning and operating the massive pipeline infrastructure. Russian President Dmitry Medvedev is former chairman of Gazprom. This cozy relationship allows the Kremlin to influence international commodity markets for political gain. Natural gas is less of a fungible good than oil and this distinction is reflected in the inconsistent prices for the resource. Pipelines are the only effective means of transporting natural gas at today’s prices and with today’s technology. The price of a unit of Russian gas varies by the terms of contracts set between Russia and its individual customers. Pipelines, by their fixed nature and high capital cost, force a long-term relationship between buyer and seller. Unlike the situation for oil suppliers, a gas producer cannot quickly divert his or her product to another willing buyer should the initial customer be unable, or unwilling, to pay. Buyers do not have much flexibility either. In the short term, they have little choice but to purchase gas from the supplier at the other end of the pipeline. The relative rigidity of the natural gas industry inextricably links European gas consumers to Russia’s foreign policy objectives. These goals - broadly increased wealth, influence and security - are realized through the web of Gazprom’s pipelines crisscrossing the continent.

#### Russian economic decline causes Russia-China war.

Trenin, Deputy Director of the Carnegie Endowment for International Peace and Former Russian Office, ‘2

[Dmitri, After Eurasia, pp. 308-309]

Usually, there is no shortage of dire predictions concerning Russia’s ultimate fate. In a characteristic exchange of views on the eve of the year 2000, a prominent Russian intellectual predicted Russia’s disintegration within 10 to 15 years. His European counterpart’s vision of Russia was that of Muscovy west of the Urals, with Siberia under Chinese control. The American scholar limited himself to the vision of a Sino-Russian war. If a doomsday scenario were to become a reality, this would be the result of a major economic catastrophe. If Russia became a loose confederation, its borderlands would gravitate in different directions, and governing Russia would require the art of managing these very different orientations. In other words, Russia would still join the world, but it would do so in less than one piece.

#### Sino-Russo war results in extinction.

Sharvin, Director of the Institute for Military and Political Analysis, ‘1

[Alexander, What the Papers Say, October 3]

Now, a few words about the third type of war. A real military threat to Russia from China has not merely been ignored; it has been denied by Russia's leaders and nearly all of the political forces. Let's see some statistic figures at first. The territory of Siberia and the Russian Far East comprises 12,765,900 square kilometers (75% of Russia's entire area), with a population of 40,553,900 people (28% of Russia's population). The territory of China is 9,597,000 square kilometers and its population is 1.265 billion (which is 29 times greater than the population of Siberia and the Russian Far East). **China's economy is** among the fastest-growing economies in the world. It remains socialistic in many aspects, i.e. extensive and highly expensive, **demanding more** and more **natural resources. China's** natural resources **are** rather **limited, whereas** the depths of Siberia and the **Russian Far East are almost inexhaustible**. Chinese propaganda has constantly been showing us skyscrapers in free trade zones in southeastern China. It should not be forgotten, however, that some 250 to 300 million people live there, i.e. at most a quarter of China's population. A billion Chinese people are still living in misery. For them, even the living standards of a backwater Russian town remain inaccessibly high. They have absolutely nothing to lose. There is every prerequisite for "the final throw to the north." The strength of the Chinese People's Liberation Army (CPLA) has been growing quicker than the Chinese economy. A decade ago the CPLA was equipped with inferior copies of Russian arms from late 1950s to the early 1960s. However, through its own efforts Russia has nearly managed to liquidate its most significant technological advantage. Thanks to our zeal, from antique MiG-21 fighters of the earliest modifications and S-75 air defense missile systems the Chinese antiaircraft defense forces have adopted Su-27 fighters and S-300 air defense missile systems. China's air defense forces have received Tor systems instead of anti-aircraft guns which could have been used during World War II. The shock air force of our "eastern brethren" will in the near future replace antique Tu-16 and Il-28 airplanes with Su-30 fighters, which are not yet available to the Russian Armed Forces! Russia may face the "wonderful" prospect of combating the Chinese army, which, if full mobilization is called, is comparable in size with Russia's entire population, which also has nuclear weapons (even tactical weapons become strategic if states have common borders) and would be absolutely insensitive to losses (even a loss of a few million of the servicemen would be acceptable for China). Such a war would be more horrible than the World War II. It would require from our state maximal tension, universal mobilization and complete accumulation of the army military hardware, up to the last tank or a plane, in a single direction (we would have to forget such "trifles" like Talebs and Basaev, but this does not guarantee success either). Massive nuclear strikes on basic military forces and cities of China would finally **be the only way out**, what would exhaust Russia's armament completely. We have not got another set of intercontinental ballistic missiles and submarine-based missiles, whereas the general forces would be extremely exhausted in the border combats. In the long run, even if the aggression would be stopped after the majority of the Chinese are killed, **our country would be absolutely unprotected against** the "Chechen" and the "Balkan" variants both, and even against the first frost of a possible **nuclear winter**.

#### No Russian aggression – strong demographic and structural changes

Popescu ’12 (European Council on Foreign Relations research fellow, Nicu, February 3, 2012, European Council on Foreign Relations, "Russia’s liberal-nationalist cocktail” blogs.euobserver.com/popescu/2012/02/06/russias-liberal-nationalist-cocktail/, accessed 2-11-12, atl)

One of Vladimir Putin’s recent pre-election articles dedicated to the ‘national question’ largely subscribes to this view, even though he laments the ‘inadequate, aggressive, defiant and disrespectful’ behaviour of some migrants. But such imperialist nationalism was based on a strong confidence in Russia’s state capacity, power of territorial expansion and cultural attraction. However, the growing realisation of Russia’s structural problems – from demographic crisis to bad governance under Putin, topped by the economic crisis – has led to some structural shifts in Russian nationalism. An increasingly obvious trend in the last few years is for the ‘old’ expansionist nationalism to rapidly lose ground to a new breed of isolationist, introvert and defensive nationalism that is primarily anti-immigrant and often anti-imperial. Such nationalism is more concerned with maintaining Russia’s ‘Russianness’ than with territorial expansion. The key source of this defensive nationalism is the toxic mix of high immigration into Russia coupled with a demographic crisis. With over 12 million migrants, Russia is the second biggest recipient of inward migration in the world after the US, though as a share of migrants per total population Russia only ranks 55th in the world. From the nationalists’ perspective Russia’s demographic crisis is two-fold. One aspect is the decline of Russia’s population, with the threat of further decline due to the higher numbers of old than young. But from the nationalists’ perspective, graver still is the fact that the fall in numbers of ethnic Russians due to emigration, high mortality and low birth rates is faster than the overall demographic decline, the pace of which has indeed slowed, partly due to immigration (primarily from Central Asia and the south Caucasus) and higher population growth among some Russian minorities, particularly in the north Caucasus. So the fear is not only about Russia’s decreasing population, but even more so about the fact that Russia is becoming less ethnically Russian. The instinctive response to fears of relative demographic decline of ethnic Russians is a growing ‘fortress Russia’ syndrome. At its core, Russia’s defensive nationalism rests on a much-diminished belief in Russia’s power to expand and assimilate its periphery, particularly the culturally distant Muslim populations of Central Asia and the Caucasus. The nationalist schism is clearly visible at nationalist marches parts of the crowd shout ‘there is no Russia without Caucasus’ whereas other parts shout ‘Stop feeding the Caucasus’ and ‘Migrants today, Occupiers tomorrow’.

### Naval Power

#### No solvency- gas productivity and reserve size over-estimated--- insider knowledge proves and investment will collapse.

Urbina, NY Times Staff, ‘11

[Ian, “Insiders Sound an Alarm Amid a Natural Gas Rush," NY Times, 6-25-11, www.nytimes.com/2011/06/26/us/26gas.html?pagewanted=all]

Natural gas companies have been placing enormous bets on the wells they are drilling, saying they will deliver big profits and provide a vast new source of energy for the United States. But the gas may not be as easy and cheap to extract from shale formations deep underground as the companies are saying, according to hundreds of industry e-mails and internal documents and an analysis of data from thousands of wells. In the e-mails, energy executives, industry lawyers, state geologists and market analysts voice skepticism about lofty forecasts and question whether companies are intentionally, and even illegally, overstating the productivity of their wells and the size of their reserves. Many of these e-mails also suggest a view that is in stark contrast to more bullish public comments made by the industry, in much the same way that insiders have raised doubts about previous financial bubbles. “Money is pouring in” from investors even though shale gas is “inherently unprofitable,” an analyst from PNC Wealth Management, an investment company, wrote to a contractor in a February e-mail. “Reminds you of dot-coms.” “The word in the world of independents is that the shale plays are just giant Ponzi schemes and the economics just do not work,” an analyst from IHS Drilling Data, an energy research company, wrote in an e-mail on Aug. 28, 2009. Company data for more than 10,000 wells in three major shale gas formations raise further questions about the industry’s prospects. There is undoubtedly a vast amount of gas in the formations. The question remains how affordably it can be extracted. The data show that while there are some very active wells, they are often surrounded by vast zones of less-productive wells that in some cases cost more to drill and operate than the gas they produce is worth. Also, the amount of gas produced by many of the successful wells is falling much faster than initially predicted by energy companies, making it more difficult for them to turn a profit over the long run. If the industry does not live up to expectations, the impact will be felt widely. Federal and state lawmakers are considering drastically increasing subsidies for the natural gas business in the hope that it will provide low-cost energy for decades to come. But if natural gas ultimately proves more expensive to extract from the ground than has been predicted, landowners, investors and lenders could see their investments falter, while consumers will pay a price in higher electricity and home heating bills. There are implications for the environment, too. The technology used to get gas flowing out of the ground — called hydraulic fracturing, or hydrofracking — can require over a million gallons of water per well, and some of that water must be disposed of because it becomes contaminated by the process. If shale gas wells fade faster than expected, energy companies will have to drill more wells or hydrofrack them more often, resulting in more toxic waste. The e-mails were obtained through open-records requests or provided to The New York Times by industry consultants and analysts who say they believe that the public perception of shale gas does not match reality; names and identifying information were redacted to protect these people, who were not authorized to communicate publicly. In the e-mails, some people within the industry voice grave concerns. “And now these corporate giants are having an Enron moment,” a retired geologist from a major oil and gas company wrote in a February e-mail about other companies invested in shale gas. “They want to bend light to hide the truth.” Others within the industry remain optimistic. They argue that shale gas economics will improve as the price of gas rises, technology evolves and demand for gas grows with help from increased federal subsidies being considered by Congress. “Shale gas supply is only going to increase,” Steven C. Dixon, executive vice president of Chesapeake Energy, said at an energy industry conference in April in response to skepticism about well performance. Studying the Data “I think we have a big problem.” Deborah Rogers, a member of the advisory committee of the Federal Reserve Bank of Dallas, recalled saying that in a May 2010 conversation with a senior economist at the Reserve, Mine K. Yucel. “We need to take a close look at this right away,” she added. A former stockbroker with Merrill Lynch, Ms. Rogers said she started studying well data from shale companies in October 2009 after attending a speech by the chief executive of Chesapeake, Aubrey K. McClendon. The math was not adding up, Ms. Rogers said. Her research showed that wells were petering out faster than expected. “These wells are depleting so quickly that the operators are in an expensive game of ‘catch-up,’ ” Ms. Rogers wrote in an e-mail on Nov. 17, 2009, to a petroleum geologist in Houston, who wrote back that he agreed. “This could have profound consequences for our local economy,” she explained in the e-mail. Fort Worth residents were already reeling from the sudden reversal of fortune for the natural gas industry. In early 2008, energy companies were scrambling in Fort Worth to get residents to lease their land for drilling as they searched for so-called monster wells. Billboards along the highways stoked the boom-time excitement: “If you don’t have a gas lease, get one!” Oil and gas companies were in a fierce bidding war for drilling rights, offering people bonuses as high as $27,500 per acre for signing leases. The actor Tommy Lee Jones signed on as a pitchman for Chesapeake, one of the largest shale gas companies. “The extremely long-term benefits include new jobs and capital investment and royalties and revenues that pay for public roads, schools and parks,” he said in one television advertisement about drilling in the Barnett shale in and around Fort Worth. To investors, shale companies had a more sophisticated pitch. With better technology, they had refined a “manufacturing model,” they said, that would allow them to drop a well virtually anywhere in certain parts of a shale formation and expect long-lasting returns. For Wall Street, this was the holy grail: a low-risk and high-profit proposition. But by late 2008, the recession took hold and the price of natural gas plunged by nearly two-thirds, throwing the drilling companies’ business model into a tailspin. In Texas, the advertisements featuring Mr. Jones disappeared. Energy companies rescinded high-priced lease offers to thousands of residents, which prompted class-action lawsuits. Royalty checks dwindled. Tax receipts fell. The impact of the downturn was immediate for many. “Ruinous, that’s how I’d describe it,” said the Rev. Kyev Tatum, president of the Fort Worth chapter of the Southern Christian Leadership Conference. Mr. Tatum explained that dozens of black churches in Fort Worth signed leases on the promise of big money. Instead, some churches were told that their land may no longer be tax exempt even though they had yet to make any royalties on the wells, he said. That boom-and-bust volatility had raised eyebrows among people like Ms. Rogers, as well as energy analysts and geologists, who started looking closely at the data on wells’ performance. In May 2010, the Federal Reserve Bank of Dallas called a meeting to discuss the matter after prodding from Ms. Rogers. One speaker was Kenneth B. Medlock III, an energy expert at Rice University, who described a promising future for the shale gas industry in the United States. When he was done, Ms. Rogers peppered him with questions. Might growing environmental concerns raise the cost of doing business? If wells were dying off faster than predicted, how many new wells would need to be drilled to meet projections? Mr. Medlock conceded that production in the Barnett shale formation — or “play,” in industry jargon — was indeed flat and would probably soon decline. “Activity will shift toward other plays because the returns there are higher,” he predicted. Ms. Rogers turned to the other commissioners to see if they shared her skepticism, but she said she saw only blank stares. Bubbling Doubts Some doubts about the industry are being raised by people who work inside energy companies, too. “Our engineers here project these wells out to 20-30 years of production and in my mind that has yet to be proven as viable,” wrote a geologist at Chesapeake in a March 17 e-mail to a federal energy analyst. “In fact I’m quite skeptical of it myself when you see the % decline in the first year of production.” “In these shale gas plays no well is really economic right now,” the geologist said in a previous e-mail to the same official on March 16. “They are all losing a little money or only making a little bit of money.” Around the same time the geologist sent the e-mail, Mr. McClendon, Chesapeake’s chief executive, told investors, “It’s time to get bullish on natural gas.” In September 2009, a geologist from ConocoPhillips, one of the largest producers of natural gas in the Barnett shale, warned in an e-mail to a colleague that shale gas might end up as “the world’s largest uneconomic field.” About six months later, the company’s chief executive, James J. Mulva, described natural gas as “nature’s gift,” adding that “rather than being expensive, shale gas is often the low-cost source.” Asked about the e-mail, John C. Roper, a spokesman for ConocoPhillips, said he absolutely believed that shale gas is economically viable. A big attraction for investors is the increasing size of the gas reserves that some companies are reporting. Reserves — in effect, the amount of gas that a company says it can feasibly access from its wells — are important because they are a central measure of an oil and gas company’s value. Forecasting these reserves is a tricky science. Early predictions are sometimes lowered because of drops in gas prices, as happened in 2008. Intentionally overbooking reserves, however, is illegal because it misleads investors. Industry e-mails, mostly from 2009 and later, include language from oil and gas executives questioning whether other energy companies are doing just that. The e-mails do not explicitly accuse any companies of breaking the law. But the number of e-mails, the seniority of the people writing them, the variety of positions they hold and the language they use — including comparisons to Ponzi schemes and attempts to “con” Wall Street — suggest that questions about the shale gas industry exist in many corners. “Do you think that there may be something suspicious going with the public companies in regard to booking shale reserves?” a senior official from Ivy Energy, an investment firm specializing in the energy sector, wrote in a 2009 e-mail. A former Enron executive wrote in 2009 while working at an energy company: “I wonder when they will start telling people these wells are just not what they thought they were going to be?” He added that the behavior of shale gas companies reminded him of what he saw when he worked at Enron. Production data, provided by companies to state regulators and reviewed by The Times, show that many wells are not performing as the industry expected. In three major shale formations — the Barnett in Texas, the Haynesville in East Texas and Louisiana and the Fayetteville, across Arkansas — less than 20 percent of the area heralded by companies as productive is emerging as likely to be profitable under current market conditions, according to the data and industry analysts. Richard K. Stoneburner, president and chief operating officer of Petrohawk Energy, said that looking at entire shale formations was misleading because some companies drilled only in the best areas or had lower costs. “Outside those areas, you can drill a lot of wells that will never live up to expectations,” he added. Although energy companies routinely project that shale gas wells will produce gas at a reasonable rate for anywhere from 20 to 65 years, these companies have been making such predictions based on limited data and a certain amount of guesswork, since shale drilling is a relatively new practice. Most gas companies claim that production will drop sharply after the first few years but then level off, allowing most wells to produce gas for decades. Gas production data reviewed by The Times suggest that many wells in shale gas fields do not level off the way many companies predict but instead decline steadily. “This kind of data is making it harder and harder to deny that the shale gas revolution is being oversold,” said Art Berman, a Houston-based geologist who worked for two decades at Amoco and has been one of the most vocal skeptics of shale gas economics. The Barnett shale, which has the longest production history, provides the most reliable case study for predicting future shale gas potential. The data suggest that if the wells’ production continues to decline in the current manner, many will become financially unviable within 10 to 15 years. A review of more than 9,000 wells, using data from 2003 to 2009, shows that — based on widely used industry assumptions about the market price of gas and the cost of drilling and operating a well — less than 10 percent of the wells had recouped their estimated costs by the time they were seven years old.

#### The Navy is no longer useful to prevent conflict.

Goure, Vice President, Lexington Institute, PhD , ‘10

[Daniel, 2 July 2010, Can The Case Be Made For Naval Power?,

http://www.lexingtoninstitute.org/can-the-case-be-made-for-naval-power-?a=1&c=1171]
This is no longer the case. The U.S. faces no great maritime challengers. While China appears to be toying with the idea of building a serious Navy this is many years off. Right now it appears to be designing a military to keep others, including the United States, away, out of the Western Pacific and Asian littorals. But even if it were seeking to build a large Navy, many analysts argue that other than Taiwan it is difficult to see a reason why Washington and Beijing would ever come to blows. Our former adversary, Russia, would have a challenge fighting the U.S. Coast Guard, much less the U.S. Navy. After that, there are no other navies of consequence. Yes, there are some scenarios under which Iran might attempt to close the Persian Gulf to oil exports, but how much naval power would really be required to reopen the waterway? Actually, the U.S. Navy would probably need more mine countermeasures capabilities than it currently possesses.
More broadly, it appears that the nature of the security challenges confronting the U.S. has changed dramatically over the past several decades. There are only a few places where even large-scale conventional conflict can be considered possible. None of these would be primarily maritime in character although U.S. naval forces could make a significant contribution by employing its offensive and defensive capabilities over land. For example, the administration’s current plan is to rely on sea-based Aegis missile defenses to protect regional allies and U.S. forces until a land-based variant of that system can be developed and deployed. The sea ways, sometimes called the global commons, are predominantly free of dangers. The exception to this is the chronic but relatively low level of piracy in some parts of the world. So, the classic reasons for which nations build navies, to protect its own shores and its commerce or to place the shores and commerce of other states in jeopardy, seem relatively unimportant in today’s world.

#### Naval power resilient – no challengers to overwhelming U.S. power.

Posen, Professor of Political Science – Massachusetts Institute of Technology, ‘3

[Barry, “Command of the Commons: The Military Foundation of U.S. Hegemony”, International Security, 28(1), Ebsco]

Command of the commons is the military foundation of U.S. political preeminence. It is the key enabler of the hegemonic foreign policy that the United States has pursued since the end of the Cold War. The military capabilities required to secure command of the commons are the U.S. strong suit. They leverage science, technology, and economic resources. They rely on highly trained, highly skilled, and increasingly highly paid military personnel. On the whole, the U.S. military advantage at sea, in the air, and in space will be very diffcult to challenge—let alone overcome. Command is further secured by the worldwide U.S. base structure and the ability of U.S. diplomacy to leverage other sources of U.S. power to secure additional bases and overflight rights as needed.

#### No war – China won’t risk it all and no flashpoints.

Bremmer 10 (Ian, President of the Eurasia Group, “Gathering Storm: America and China in 2020”, July/August 2010, World Affairs Journal,¶ http://www.worldaffairsjournal.org/articles/2010-JulyAugust/full-Bremmer-JA-2010.html]

In addition, Beijing has no incentive to mount a global military challenge to U.S. power. China will one day possess a much more substantial military capacity than it has today, but its economy has grown so quickly over the past two decades, and its living standards improved so dramatically, that it is difficult to imagine the kind of catastrophic, game-changing event that would push Beijing to risk it all by posing the West a large-scale military challenge. It has no incentive to allow anything less than the most serious threat to its sovereignty to trigger a military conflict that might sever its expanding network of commercial ties with countries all over the world—and with the United States, the European Union, and Japan, in particular. The more familiar flash points are especially unlikely to spark a hot war: Beijing is well aware that no U.S. government will support a Taiwanese bid for independence, and China need not invade an island that it has largely co-opted already, via an offer to much of Taiwan’s business elite of privileged access to investment opportunities on the mainland.

## 2NC

### Renewables

#### Warming outweighs their advantages –

#### Warming is the most probable for extinction --- absent multipliers, nuclear war won’t happen.

The New York End Times 6 The New York End Times is a non-partisan, non-religious, non-ideological, free news filter. We monitor world trends and events as they pertain to two vital threats - war and extinction. We use a proprietary methodology to quantify movements between the extremes of war and peace, harmony and extinction. http://newyorkendtimes.com/extinctionscale.asp

We rate Global Climate Change as a greater threat for human extinction in this century. Most scientists forecast disruptions and dislocations, if current trends persist. The extinction danger is more likely if we alter an environmental process that causes harmful effects and leads to conditions that make the planet uninhabitable to humans. Considering that there is so much that is unknown about global systems, we consider climate change to be the greatest danger to human extinction. However, there is no evidence of imminent danger. Nuclear war at some point in this century might happen. It is unlikely to cause human extinction though. While several countries have nuclear weapons, there are few with the firepower to annihilate the world. For those nations it would be suicidal to exercise that option. The pattern is that the more destructive technology a nation has, the more it tends towards rational behavior. Sophisticated precision weapons then become better tactical options. The bigger danger comes from nuclear weapons in the hands of terrorists with the help of a rogue state, such as North Korea. The size of such an explosion would not be sufficient to threaten humanity as a whole. Instead it could trigger a major war or even world war. Under this scenario human extinction would only be possible if other threats were present, such as disease and climate change. We monitor war separately. However we also need to incorporate the dangers here .

#### Nuclear war doesn’t cause extinction from climate change.

Seitz, former Presidential science advisor and keynote speaker at international science conferences, ‘6

[Russell, holds multiple patents and degrees from Harvard and MIT, “The ‘Nuclear Winter’ Meltdown,” http://adamant.typepad.com/seitz/2006/12/preherein\_honor.html, accessed October 18, 2007]

"Apocalyptic predictions require, to be taken seriously,higher standards of evidence than do assertions on other matters where the stakes are not as great." wrote Sagan in Foreign Affairs , Winter 1983 -84. But that "**evidence**" **was never forthcoming**. 'Nuclear Winter' never existed outside of a computer except as air-brushed animation commissioned by the a PR firm - Porter Novelli Inc. Yet Sagan predicted "the extinction of the human species " as temperatures plummeted 35 degrees C and the world froze in the aftermath of a nuclear holocaust. Last year, Sagan's cohort tried to reanimate the ghost in a machine anti-nuclear activists invoked in the depths of the Cold War, by re-running equally arbitrary scenarios on a modern interactive Global Circulation Model. But the Cold War is history in more ways than one. It is a credit to post-modern computer climate simulations that they **do not reproduce the apocalyptic results** of what Sagan oxymoronically termed "a sophisticated one dimensional model." The subzero 'baseline case' has melted down into a tepid 1.3 degrees of average cooling- grey skies do not a Ragnarok make. What remains is **just not the stuff that End of the World myths are made of**.

#### Turns your impacts -- Warming makes every major flashpoint for war inevitable.

Scheffran, Adjunct Associate Professor of Political & Atmospheric Science @ the University of Illinois, ‘8

[Jurgen, Bulletin of the Atomic Scientists, Vol. 64, No. 2]

The larger question at hand for both developing and developed countries is whether the effects of climate change will exacerbate existing risks and conflicts or will lead to new ones. While much of the early research literature remains undecided on this question, several recent policy-oriented studies take a more pronounced position. In April 2007, the CNA Corporation, a U.S.-based think tank, and the Military Advisory Board, a blue-ribbon panel of retired admirals and generals, published a report on the connection between climate change and national security. The report resolutely identifies climate change as a “threat multiplier of instability” that “will seriously exacerbate already marginal living standards in many Asian, African, and Middle Eastern nations, causing widespread political instability and the likelihood of failed states.”19 Already fragile regions are susceptible to large-scale migrations, increased border tensions, the spread of disease, and conflicts over food and water, and could become breeding grounds for extremism and terrorism, the report finds. The threat could affect Americans at home, impact U.S. military operations, and heighten global tensions. The report recommends integrating climate change into U.S. national security strategy “to help stabilize climate change at levels that will avoid significant disruption to global security and stability.”The findings of the CSIS panel, which included former CIA director James Woolsey and Nobel laureate Thomas Schelling, similarly concluded that global warming could “destabilize virtually every aspect of modern life” and would likely breed new conflicts and magnify existing problems, from the desertification of Darfur and competition for water in the Middle East to the disruptive monsoons in Asia, all of which increase the pressure for land.20 As temperatures increase, so may the potential for conflict. A temperature rise of 1.3 degrees Celsius, which scientists expect by 2040, would heighten internal and cross-border tensions caused by large-scale migrations; spark conflict over resource scarcity; increase the spread of diseases; and reorder geopolitics as nations adjust to shifts in resources and prevalence of disease, according to the panel’s findings. Severe climate change, a temperature rise of 2.6 degrees Celsius by 2040, could induce massive nonlinear societal events, including a dramatic rise in migration; changes in agricultural patterns and water availability; the emergence of pandemic diseases; and the flooding of coastal communities around the world. Armed conflict between nations over resources is likely, and nuclear war is possible, according to the CSIS panel’s findings. An even higher temperature change “would pose almost inconceivable challenges for human society.”

#### Not past tipping point but we must act quickly with long term technological innovation to avoid the irreversible climate change triggered by 2°C.

Peters, et al., ’12(Glen (Center for International Climate and Environmental Research – Oslo); Robbie Andrew (Center for International Climate and Environmental Research – Oslo); Tom Boden (Carbon Dioxide Information Analysis Center (CDIAC), Oak Ridge National Laboratory); Josep Canadell (Global Carbon Project, CSIRO Marine and Atmospheric Research, Canberra, Australia); Philippe Ciais (Laboratoire des Sciences du Climat et de l’Environnement, Gif sur Yvette, France); Corinne Le Quéré (Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK); Gregg Marland (Research Institute for Environment, Energy, and Economics, Appalachian State University); Michael R. Raupach (Global Carbon Project, CSIRO Marine and Atmospheric Research, Canberra, Australia); and Charlie Wilson (Tyndall Centre for Climate Change Research, University of East Anglia, Norwich, UK), “The challenge to keep global warming below 2 °C”, Nature Climate Change, 12-2-12, RSR)

It is important to regularly re-assess the relevance of emissions scenarios in light of changing global circumstances3,8. In the past, decadal trends in CO2 emissions have responded slowly to changes in the underlying emission drivers because of inertia and path dependence in technical, social and political systems9. Inertia and path dependence are unlikely to be affected by short-term fluctuations2,3,9 — such as financial crises10 — and it is probable that emissions will continue to rise for a period even after global mitigation has started11. Thermal inertia and vertical mixing in the ocean, also delay the temperature response to CO2 emissions12. Because of inertia, path dependence and changing global circumstances, there is value in comparing observed decadal emission trends with emission scenarios to help inform the prospect of different futures being realized, explore the feasibility of desired changes in the current emission trajectory and help to identify whether new scenarios may be needed. Global CO2 emissions have increased from 6.1±0.3 Pg C in 1990 to 9.5±0.5 Pg C in 2011 (3% over 2010), with average annual growth rates of 1.9% per year in the 1980s, 1.0% per year in the 1990s, and 3.1% per year since 2000. We estimate that emissions in 2012 will be 9.7±0.5 Pg C or 2.6% above 2011 (range of 1.9–3.5%) and 58% greater than 1990 (Supplementary Information and ref. 13). The observed growth rates are at the top end of all four generations of emissions scenarios (Figs 1 and 2). Of the previous illustrative IPCC scenarios, only IS92-E, IS92-F and SRES A1B exceed the observed emissions (Fig. 1) or their rates of growth (Fig. 2), with RCP8.5 lower but within uncertainty bounds of observed emissions. Observed emission trends are in line with SA90-A, IS92-E and IS92-F, SRES A1FI, A1B and A2, and RCP8.5 (Fig. 2). The SRES scenarios A1FI and A2 and RCP8.5 lead to the highest temperature projections among the scenarios, with a mean temperature increase of 4.2–5.0 °C in 2100 (range of 3.5–6.2 °C)14, whereas the SRES A1B scenario has decreasing emissions after 2050 leading to a lower temperature increase of 3.5 °C (range 2.9–4.4°C)14. Earlier research has noted that observed emissions have tracked the upper SRES scenarios15,16 and Fig. 1 confirms this for all four scenario generations. This indicates that the space of possible pathways could be extended above the top-end scenarios to accommodate the possibility of even higher emission rates in the future. The new RCPs are particularly relevant because, in contrast to the earlier scenarios, mitigation efforts consistent with longterm policy objectives are included among the pathways2,. RCP3-PD (peak and decline in concentration) leads to a mean temperature increase of 1.5 °C in 2100 (range of 1.3–1.9 °C)14. RCP3–PD requires net negative emissions (for example, bioenergy with carbon capture and storage) from 2070, but some scenarios suggest it is possible to stay below 2 °C without negative emissions17–19. RCP4.5 and RCP6 — which lie between RCP3–PD and RCP8.5 in the longer term — lead to a mean temperature increase of 2.4 °C (range of 1.0–3.0 °C) and 3.0 °C (range of 2.6–3.7 °C) in 2100, respectively14. For RCP4.5, RCP6 and RCP8.5, temperatures will continue to increase after 2100 due to on-going emissions14 and inertia in the climate system12. Current emissions are tracking slightly above RCP8.5, and given the growing gap between the other RCPs (Fig. 1), significant emission reductions are needed by 2020 to keep 2 °C as a feasible goal18–20. To follow an emission trend that can keep the temperature increase below 2 °C (RCP3-PD) requires sustained global CO2 mitigation rates of around 3% per year, if global emissions peak before 202011,19. A delay in starting mitigation activities will lead to higher mitigation rates11, higher costs21,22, and the target of remaining below 2 °C may become unfeasible18,20. If participation is low, then higher rates of mitigation are needed in individual countries, and this may even increase mitigation costs for all countries22. Many of these rates assume that negative emissions will be possible and affordable later this century11,17,18,20. Reliance on negative emissions has high risks because of potential delays or failure in the development and large-scale deployment of emerging technologies such as carbon capture and storage, particularly those connected to bioenergy17,18. Although current emissions are tracking the higher scenarios, it is still possible to transition towards pathways consistent with keeping temperatures below 2 °C (refs 17,19,20). The historical record shows that some countries have reduced CO2 emissions over 10-year periods, through a combination of (non-climate) policy intervention and economic adjustments to changing resource availability. The oil crisis of 1973 led to new policies on energy supply and energy savings, which produced a decrease in the share of fossil fuels (oil shifted to nuclear) in the energy supply of Belgium, France and Sweden, with emission reductions of 4–5% per year sustained over 10 or more years (Supplementary Figs S17–19). A continuous shift to natural gas — partially substituting coal and oil — led to sustained mitigation rates of 1–2% per year in the UK in the 1970s and again in the 2000s, 2% per year in Denmark in the 1990–2000s, and 1.4% per year since 2005 in the USA (Supplementary Figs S10–12). These examples highlight the practical feasibility of emission reductions through fuel substitution and efficiency improvements, but additional factors such as carbon leakage23 need to be considered. These types of emission reduction can help initiate a transition towards trajectories consistent with keeping temperatures below 2 °C, but further mitigation measures are needed to complete and sustain the reductions. Similar energy transitions could be encouraged and co-ordinated across countries in the next 10 years using available technologies19, but well-targeted technological innovations24 are required to sustain the mitigation rates for longer periods17. To move below the RCP8.5 scenario — avoiding the worst climate impacts — requires early action17,18,21 and sustained mitigation from the largest emitters22 such as China, the United States, the European Union and India. These four regions together account for over half of global CO2 emissions, and have strong and centralized governing bodies capable of co-ordinating such actions. If similar energy transitions are repeated over many decades in a broader range of developed and emerging economies, the current emission trend could be pulled down to make RCP3‑PD, RCP4.5 and RCP6 all feasible futures. A shift to a pathway with the highest likelihood to remain below 2 °C above preindustrial levels (for example, RCP3-PD), requires high levels of technological, social and political innovations, and an increasing need to rely on net negative emissions in the future11,17,18. The timing of mitigation efforts needs to account for delayed responses in both CO2 emissions9 (because of inertia in technical, social and political systems) and also in global temperature12 (because of inertia in the climate system). Unless large and concerted global mitigation efforts are initiated soon, the goal of remaining below 2 °C will very soon become unachievable.

#### Warming and CO2 emissions kill biodiversity – newest research shows that ecosystems are on the brink due to human activity.

Barnosky, et al., ’12 (Anthony (Department of Integrative Biology, University of California, Berkeley); Elizabeth Hadly (Department of Biology, Stanford University); Jordi Bascompte (Integrative Ecology Group, Estacion Biologica de Donana, Sevilla, Spain); Eric Berlow (TRU NORTH Labs, Berkeley, California); James H. Brown (Department of Biology, The University of New Mexico); Mikael Fortelius (Department of Geosciences and Geography and Finnish Museum of Natural History); Wayne Getz (Department of Environmental Science, Policy, and Management, University of California, Berkeley); John Harte (Department of Environmental Science, Policy, and Management, University of California, Berkeley); Alan Hastings (Department of Environmental Science and Policy, University of California – Davis); Pablo Marquet (Departamento de Ecologıa, Facultad de Ciencias Biologicas, Pontificia Universidad Catolica de Chile); Neo Martinez (Pacific Ecoinformatics and Computational Ecology Lab); Arne Mooers (Department of Biological Sciences, Simon Fraser University); Peter Roopnarine (California Academy of Sciences); Geerta Vermeij (Department of Geology, University of California – Davis); John W. Williams (Department of Geography, University of Wisconsin); Rosemary Gilespie (Department of Environmental Science, Policy, and Management, University of California, Berkeley); Justin Kitzes (Department of Environmental Science, Policy, and Management, University of California, Berkeley); Charles Marshall (Department of Integrative Biology, University of California, Berkeley); Nicholas Matzke (Department of Integrative Biology, University of California, Berkeley); David Mindell ( Department of Biophysics and Biochemistry, University of California, San Francisco); Eloy Revilla (Department of Conservation Biology, Estacion Biologica de Donana); and Adam B. Smith (Center for Conservation and Sustainable Development, Missouri Botanical Garden), “Approaching a state shift in Earth’s biosphere”, Nature, May 2012, RSR)

As a result of human activities, direct local-scale forcings have accumulated to the extent that indirect, global-scale forcings of biological change have now emerged. Direct forcing includes the conversion of ,43% of Earth’s land to agricultural or urban landscapes, with much of the remaining natural landscapes networked with roads 1,2,34,35 . This exceeds the physical transformation that occurred at the last global-scale critical transition, when ,30% of Earth’s surface went from being covered by glacial ice to being ice free. The indirect global-scale forcings that have emerged from human activities include drastic modification of how energy flows through the global ecosystem. An inordinate amount of energy now is routed through one species, Homo sapiens. Humans commandeer ,20–40% of global net primary productivity 1,2,35 (NPP) and decrease overall NPP through habitat degradation. Increasing NPP regionally through atmospheric and agricultural deposition of nutrients (for example nitrogen and phosphorus) does not make up the shortfall 2 . Second, through the release of energy formerly stored in fossil fuels, humans have substantially increased the energy ultimately available to power the global ecosystem. That addition does not offset entirely the human appropriation of NPP, because the vast majority of that ‘extra’ energy is used to support humans and their domesticates, the sum of which comprises large-animal biomass that is far beyond that typical of pre-industrial times 27 . A decrease in this extra energy budget, which is inevitable if alternatives do not compensate for depleted fossil fuels, is likely to impact human health and economies severely 28 , and also to diminish biodiversity 27 , the latter because even more NPP would have to be appropriated by humans, leaving less for other species 36 . By-products of altering the global energy budget are major modifications to the atmosphere and oceans. Burning fossil fuels has increased atmospheric CO2 concentrations by more than a third (,35%) with respect to pre-industrial levels, with consequent climatic disruptions that include a higher rate of global warming than occurred at the last global-scale state shift 37 . Higher CO2 concentrations have also caused the ocean rapidly to become more acidic, evident as a decrease in pH by ,0.05 in the past two decades 38 . In addition, pollutants from agricultural run-off and urban areas have radically changed how nutrients cycle through large swaths of marine areas 16 . Already observable biotic responses include vast ‘dead zones’ in the near-shore marine realm39 , as well as the replacement of .40% of Earth’s formerly biodiverse land areas with landscapes that contain only a few species of crop plants, domestic animals and humans 3,40 . Worldwide shifts in species ranges, phenology and abundances are concordant with ongoing climate change and habitat transformation 41 . Novel communities are becoming widespread as introduced, invasive and agricultural species integrate into many ecosystems 42 . Not all community modification is leading to species reductions; on local and regional scales, plant diversity has been increasing, owing to anthropogenic introductions 42 , counter to the overall trend of global species loss 5,43 . However, it is unknown whether increased diversity in such locales will persist or will eventually decrease as a result of species interactions that play out over time. Recent and projected 5,44 extinction rates of vertebrates far exceed empirically derived background rates 25 . In addition, many plants, vertebrates and invertebrates have markedly reduced their geographic ranges and abundances to the extent that they are at risk of extinction 43 . Removal of keystone species worldwide, especially large predators at upper trophic levels, has exacerbated changes caused by less direct impacts, leading to increasingly simplified and less stable ecological networks 39,45,46 . Looking towards the year 2100, models forecast that pressures on biota will continue to increase. The co-opting of resources and energy use by humans will continue to increase as the global population reaches 9,500,000,000 people (by 2050), and effects will be greatly exacerbated if per capita resource use also increases. Projections for 2100 range from a population low of 6,200,000,000 (requiring a substantial decline in fertility rates) to 10,100,000,000 (requiring continued decline of fertility in countries that still have fertility above replacement level) to 27,000,000,000 (if fertility remains at 2005–2010 levels; this population size is not thought to be supportable; ref. 31). Rapid climate change shows no signs of slowing. Modelling suggests that for ,30% of Earth, the speed at which plant species will have to migrate to keep pace with projected climate change is greater than their dispersal rate when Earth last shifted from a glacial to an interglacial climate 47 , and that dispersal will be thwarted by highly fragmented landscapes. Climates found at present on 10–48% of the planet are projected to disappear within a century, and climates that contemporary organisms have never experienced are likely to cover 12–39% of Earth 48 . The mean global temperature by 2070 (or possibly a few decades earlier) will be higher than it has been since the human species evolved. The magnitudes of both local-scale direct forcing and emergent globalscaleforcing are much greater than those that characterized the last globalscale state shift, and are not expected to decline any time soon. Therefore, the plausibility of a future planetary state shift seems high, even though considerable uncertainty remains about whether it is inevitable and, if so, how far in the future it may be. The clear potential for a planetary-scale state shift greatly complicates biotic forecasting efforts, because by their nature state shifts contain surprises. Nevertheless, some general expectations can be gleaned from the natural experiments provided by past global-scale state shifts. On the timescale most relevant to biological forecasting today, biotic effects observed in the shift from the last glacial to the present interglacial (Box 1) included many extinctions 30,49–51 ; drastic changes in species distributions, abundances and diversity; and the emergence of novel communities 49,50,52–54 . New patterns of gene flow triggered new evolutionary trajectories 55–58 , but the time since then has not been long enough for evolution to compensate for extinctions. At a minimum, these kinds of effects would be expected from a globalscale state shift forced by present drivers, not only in human-dominated regions but also in remote regions not now heavily occupied by humans (Fig. 1); indeed, such changes are already under way (see above 5,25,39,41–44 ). Given that it takes hundreds of thousands to millions of years for evolution to build diversity back up to pre-crash levels after major extinction episodes 25 , increased rates of extinction are of particular concern, especially because global and regional diversity today is generally lower than it was 20,000 yr ago as a result of the last planetary state shift 37,50,51,54,59 . This large-scale loss of diversity is not overridden by historical increases in plant species richness in many locales, owing to human-transported species homogenizing the world’s biota 42 . Possible too are substantial losses of ecosystem services required to sustain the human population 60 . Still unknown is the extent to which human-caused increases in certain ecosystem services—such as growing food—balances the loss of ‘natural’ ecosystem services, many of which already are trending in dangerous directions as a result of overuse, pollutants and climate change 3,16 . Examples include the collapse of cod and other fisheries 45,61,62 ; loss of millions of square kilometres of conifer forests due to climate-induced bark-beetle outbreaks; 63 loss of carbon sequestration by forest clearing 60 ; and regional losses of agricultural productivity from desertification or detrimental land-use practices 1,35 . Although the ultimate effects of changing biodiversity and species compositions are still unknown, if critical thresholds of diminishing returns in ecosystem services were reached over large areas and at the same time global demands increased (as will happen if the population increases by 2,000,000,000 within about three decades), widespread social unrest, economic instability and loss of human life could result 64 .

#### Volatility in the price of gas means that countries are looking for alternative energy sources.

Nitikin, et al., ‘12

[Mary (Coordinator and Specialist in Nonproliferation at CRS); Anthony Andrews (Specialist in Energy and Defense Policy at the CRS; and Mark Holt (Specialist in Energy Policy at CRS), “Managing the Nuclear Fuel Cycle: Policy Implications of Expanding Global Access to Nuclear Power”, Congressional Research Service, 10-19-12, RSR]

Volatile prices for oil and natural gas are a fundamental factor in national energy policymaking. Average world prices for a barrel of oil rose from below $10 at the beginning of 1999 to above $130 in mid-2008. They then declined to around $50 in early 2009 and rose to around $100 through mid-2012. 5 U.S. natural gas prices have been similarly volatile, although falling sharply in 2012 with increased production from shale formations. 6 To reduce their vulnerability to oil and gas price swings, national governments are searching for alternative energy sources, often including nuclear power.

#### Nat gas prices will inevitably increase, making renewables competitive.

Finger, Forbes Contributor, ‘12

[Richard, “We're Headed To $8 Natural Gas,” 7-22-12,

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

The British Thermal Unit (btu) equivalent of one barrel of oil equals six thousand cubic feet of natural gas. Therefore if gas at $3.00 per mcf were to be at energy parity with oil, then oil would sell for $18.00. But WTI sells at $90 bbl. So gas must get more expensive or oil will get cheaper. As the gas rig count dwindles and evidence mounts that at least some of the shale plays are depleting much faster than projected, the result has been the aforementioned much lower than normal stockpile injection rates. With the disparity between oil and gas prices at such extremes, all available capital will continue to flow into drilling for gas liquids and oil. Some of the remaining dry gas drilling is probably just to maintain lease rights. Newton’s 3rd Law of Thermodynamics says for every action there is an equal and opposite reaction. Natural Gas at $13.28 is too high and the April price of $1.89 is too low. The rubber band is becoming stretched in the direction of tight supply. It’s too cheap to drill for, so supplies will further dwindle until inexorably the shortage occurs and prices spike irrationally higher. That time is sooner than later. We had an abnormally warm 2011-12 winter season in the US which sank home heating gas demand to extremely low levels. Was it because of an El Nino effect or did global warming play the pivotal role? Or, most likely, it is a confluence of several factors. Whatever the cause, the jet streams carrying the traditional cold temperatures and accompanying snowstorms didn’t reach south as far and as often as usual. Conversely, Europe had an abnormally cold winter last season suggested causes being the abstruse North Atlantic Oscillation Index, low solar activity and attendant low sunspot numbers and associated solar magnetic flux. You understand, right. Natural Gas prices have spent all of 2012 below $3.00. Just the past three trading days, perhaps starting to reflect the fundamentals discussed herein, have seen spot prices nudge above the $3.00 level. So combine 13 year low gas rig counts, declining production levels with resultant ultralow storage injections, shut in gas production, faster than anticipated shale well declines, persistent switching from oil and coal to cheaper and cleaner gas alternatives…..Then consider unending hotter than normal summer temperatures, continued greater than normal nuclear plant outages, a hurricane or two that knocks out Gulf of Mexico natural gas production for a week or two, and a La Nina induced cold winter…….any one of these can light the fuse that pushes the tenuous supply/demand balance into cardiac arrest. That’s the chain and it’s going to lead us to $8.00 mcf natural gas by the approaching winter.

#### Winter is coming and so are high price spikes

**Shmuel, ’12** (John Shmuel, Financial Post, 17 September 2012, “Natural gas could spike to US$4 this winter, says analyst,” http://business.financialpost.com/2012/09/17/natural-gas-could-spike-to-us4-this-winter-says-analyst/)//CC

If you like cheap natural gas, then you probably won’t be too thrilled with one analyst’s new forecast, which sees natural gas prices spiking this winter. Natural gas futures are currently trading at their lowest prices in more than a decade. Prices for natural gas are hovering at US$2.87 MMBTU (million British Thermal Units), which represents an 80% retreat from the peak prices touched in 2005. But Cannacord Genuity analyst John Gerdes said that a surge in demand by gas-fired power plants has led to a notable decline in storage reserves, and that has the potential to drive prices higher this winter. “In a sub-$3 gas price environment, gas-fired power generation served as the corrective mechanism to reduce the storage surplus,” he said in a note to clients. Surprisingly, natural gas continues to remain cheap even as winter approaches, when demand typically surges due to increased heating demands. One of the main factors behind slumping prices has been a glut of supply that has flooded the North American market in the last few years, driven by the development of unconventional natural gas deposits, such as those found in shale rock. But Mr. Gerdes said that if winter weather this year is in line with the 15-year average, then the smaller-than-expected gas reserves, combined with heating demand in winter, should push prices up to US$4. If the declining storage trend continues, Mr. Gerdes said that supply could decline to levels last seen in the winter of 2008, when natural gas prices were at US$7.

#### US natural gas market will crash inevitably due to supply mismanagement.

Hulbert and Goldthau, ‘12

[Matthew (Lead Analyst at European Energy Review, consultant to a number of governments, most recently as Senior Research Fellow, Netherlands Institute for International Relations, and Andreas, prior to joining CEU, he worked for Rand, SWP Germany and the Paul Nitze School of Advanced International Studies, a Fellow with the Global Public Policy Institute’s Global Energy Governance program and an Adjunct Professor with Johns Hopkins University’s MSc in Energy Policy and Climate) and Andreas (Head of the Department of Public Policy at the Central European University, an American graduate school based in Budapest, Hungary), “Why America Can Make or Break A New Global Gas World,” Forbes

http://www.forbes.com/sites/matthewhulbert/2012/08/05/why-america-can-make-or-break-a-new-global-gas-world/print/]

The same debate is raging in the US. Despite the phenomenal breakthroughs in American shale developments, the front runner of the revolution now risks becoming a victim of its own success in terms of Henry Hub prices dropping so low, that full cycle economics for US shale gas plays have become negative. Unless prices organically firm, or US producers learn the dark art of supply restraint, current output levels will be difficult to maintain or enhance for American consumers. Companies will fold; fields will be mothballed, with Chesapeake providing the best ‘poster boy’ example of how precarious shale gas economics have become. The quick fix option to get Henry Hub back at a sustainable $4-7/MMbtu level (and by far the most lucrative for some of the mid-cap players involved), is to sign up international LNG contracts. That’s exactly what’s being done, with some of the larger IOCs (Royal Dutch Shell, BP and ExxonMobil) also aggressively pushing for LNG exports to capitalise on huge spreads, not to mention preventing further write-downs on shale assets. It’s not like Chinese champions working on US plays would have any ideological opposition to such a prospect. In total, FERC has around 125bcm/y of LNG applications currently awaiting approval – even on a ‘bad day’ 40-50bcm exports should be very feasible by 2020. That would make the US the third largest LNG player in the world. It’s also going to be the crucial factor over the next five years to decide where gas markets are heading. America will be decisive for future pricing models, whether they shift to gas (rather than oil) fundamentals. US LNG could be the straw that breaks oil indexation back.

#### Status quo renewables investment is just enough so that it can compete with natural gas. Any increase in the supply of natural gas can crush investment, which risks catastrophic warming. That’s 1NC Reuters

#### Best models prove that nat gas crowds out renewable energy.

Inman 12 (Mason Inman, January 17, 2012, “Shale Gas: A Boon That Could Stunt Alternatives, Study Says,” http://news.nationalgeographic.com/news/energy/2012/01/120117-shale-gas-boom-impact-on-renewables/)

Shale gas has transformed the U.S. energy landscape in the past several years—but it may crowd out renewable energy and other ways of cutting greenhouse gas (GHG) emissions, a new study warns. A team of researchers at Massachusetts Institute of Technology used economic modeling to show that new abundant natural gas is likely to have a far more complex impact on the energy scene than is generally assumed. If climate policy continues to play out in the United States with a relatively weak set of measures to control emissions, the new gas source will lead to lower gas and electricity prices, and total energy use will be higher in 2050. Absent the shale supply, the United States could have expected to see GHG emissions 2 percent below 2005 levels by 2050 under this relatively weak policy. But the lower gas prices under the current shale gas outlook will stimulate economic growth, leading GHG emissions to increase by 13 percent over 2005. And the shale gas will retard the growth of renewable energy's share of electricity, and push off the development of carbon capture and storage technology, needed to meet more ambitious policy targets, by as long as two decades. "Shale gas is a great advantage to the U.S. in the short term, for the next few decades," said MIT economist Henry Jacoby, lead author of the new study. "But it is so attractive that it threatens other energy sources we ultimately will need."

#### Our link is empirically proven.

PennEnergy, 10

[Penn Energy, energy and financial news source, “Global gas glut threatens renewables, nuclear warns IEA,” 11-9-10, http://www.pennenergy.com/index/power/display/9340275389/articles/powergenworldwide/Business/Policy/2010/11/global-gas\_glut\_threatens.html]

A global natural gas glut over the next decade threatens to stifle investment in alternative energy sources such as renewables and nuclear power, warns the IEA. Speaking at the launch of the International Energy Agency’s annual World Energy Outlook report, Fatih Birol, its chief economist, said that the world was entering a "golden age of gas" because of surging production of shale gas using new technology developed in the US, reported The Times. Birol said the IEA, the Paris-based agency that advises the Organisation for Economic Co-operation and Development on oil and energy issues, was now predicting a global surplus of the fuel of about 150bn cubic metres annually in the years ahead. That is equivalent to five per cent of world demand of 2940bn cubic metres. However, Dr Birol warned depressed prices for the fuel were boosting investment in gas-fired power stations and having a knock-on impact on rival technologies considered critical for meeting international carbon-reduction targets, which are now less competitive. "Modest gas prices will in turn have a negative impact on many alternative fuels, including renewables and nuclear energy," he said. "We can already see the first evidence of this in the US." He pointed out that several wind energy projects had been cancelled or postponed in the US in recent months. "Nuclear is the same. The advantage of gas is that you have a very low capital cost compared with nuclear."

#### It’s zero sum with renewables capital investment – kills a transition.

Harvey, Guardian, 12

[Fiona, environment correspondent, 'Golden age of gas' threatens renewable energy, IEA warns, 5-29-12,

http://www.guardian.co.uk/environment/2012/may/29/gas-boom-renewables-agency-warns,]

A "golden age of gas" spurred by a tripling of shale gas from fracking and other sources of unconventional gas by 2035 will stop renewable energy in its tracks if governments don't take action, the International Energy Agency has warned. Gas is now relatively abundant in some regions, thanks to the massive expansion of hydraulic fracturing – fracking – for shale gas, and in some areas the price of the fuel has fallen. The result is a threat to renewable energy, which is by comparison more expensive, in part because the greenhouse gas emissions from fossil fuels are still not taken into account in the price of energy. Fatih Birol, chief economist for the IEA, said the threat to renewables was plain: "Renewable energy may be the victim of cheap gas prices if governments do not stick to their renewable support schemes." Maria van der Hoeven, executive director of the IEA, told a conference in London: "Policy measures by governments for renewable energy have to be there for years to come, as it is not always as cost-effective as it could be." Shale gas fracking – by which dense shale rocks are blasted apart under high pressure jets of water, sand and chemicals in order to release tiny bubbles of methane trapped inside them – was virtually unknown less than ten years ago, but has rapidly become commonplace. In places like the US, the rising price of energy has made such practices economically worthwhile.

#### Ohio establishes a national trend for the rest of the US.

Schneider, senior editor, Circle of Blue, ‘12

[Keith, Senior Editor of Circle of Blue, an international network of journalists, scholars and citizens writing about water issues, former NY Times correspondent, “U.S. Fossil Fuel Boom Dims Glow of Clean Energy,” 3-29-12, Yale Environment 360, http://e360.yale.edu/feature/us\_fossil\_fuel\_boom\_dims\_glow\_of\_clean\_energy/2511/]

Over the last year, though, everything in Ohio’s energy sector, like the nation’s, has changed. A surge in tapping so-called unconventional gas and oil reserves locked in underground shale formations is helping drive a national economic recovery, elevating fossil fuel production to a top economic priority, and dimming the glow of clean energy in the U.S., especially in natural gas-rich states like Ohio. At night, on both sides of the upper Ohio River valley south of Pittsburgh, floodlights illuminate the table-flat summits of steep Appalachian ridges that now serve as production pads for natural gas wells and processing plants. Drilling rigs 18 stories tall are starting to tap huge reserves beneath 17,000square miles of eastern and central Ohio. Early production results from Ohio’s Columbiana, Carroll, Harrison, and Belmont counties show the first completed wells are capable of producing millions of cubic feet of gas and more than 1,000 barrels of oil a day. Families are signing drilling leases that pay up to $5,800 an acre. Nearly $2 billion in new gas processing facilities have been announced for sites in the Ohio River Valley. The economy of the 145 miles of river from Pittsburgh to Marietta, for two generations a laboratory of industrial ruin, is perking up. “It’s fantastic what this could do for this region,” said Sharon Davis, who owns a restaurant in Sardis, Ohio, and recently received up to $5,250 an acre for the 168 acres of minerals she and her family own in Monroe County. Meanwhile, a plan to build an offshore wind farm in Lake Erie, near Cleveland, has faltered. Another proposal to build a big wind farm in western Ohio was fought to a standstill by local residents, who filed a lawsuit that went all the way to the state Supreme Court. In January, one of the state’s prominent solar manufacturing companies laid off half its workforce, and the chairman and founder of a second solar company resigned, leaving a skeletal staff and big debts. Cardinal Fastener, the Cleveland company that supplied bolts to wind turbine manufacturers, and which was visited by President-elect Obama in January 2009, declared bankruptcy last June, laid off most of the staff, and then was bought in November by a German manufacturer. “The energy picture has changed dramatically,” said Eric Burkland, president of the Ohio Manufacturers’ Association. “The price of electrical power is low. The price of natural gas is low. It’s changed the thinking on all alternative technologies. It’s affecting solar. You could say it’s taking the wind out of wind.” It wasn’t very long ago — 2008 in fact — that clean energy production, and the development of a manufacturing sector to support it, represented a cogent business plan for Ohio and other states interested in creating jobs and reducing pollution and greenhouse gas emissions. President Obama ran on a platform that responded to rising gasoline prices and industrial obsolescence with a clean energy, good jobs message. Now, President Obama talks about an “all of the above” energy strategy, as he did in January in the State of the Union, when he hailed the fossil fuel sector for generating more natural gas than ever before and for relying “less on foreign oil than in any of the past 16 years.” Weeks later the president dispatched Interior Secretary Ken Salazar to Ohio to tour a manufacturing plant that is adding jobs to build the bulk tank trailers used to haul millions of gallons of water to drill sites to hydro-fracture, or “frack,” the nation’s hydrocarbon-rich shales. In Ohio and the Midwest, the contrast between the sagging fortunes of clean energy manufacturing and the boom in the fossil fuel industry is striking. In 2008, Ohio approved a renewable energy law that required utilities to purchase 25 percent of their power by 2025 from renewable and advanced energy sources. In 2010, the Environmental Law and Policy Center of the Midwest (ELPC), a Chicago-based nonprofit, counted 106 Ohio companies involved in supplying components for the wind industry, 63 supplying materials to the solar industry, and 9,000 workers in the state’s clean energy sector. Today, no one in state government or the private sector is sure how many clean energy companies and jobs are still around in Ohio. Almost everybody agrees the sector is struggling. “There isn’t one big thing influencing the market here,” said Robert Kelter, a senior attorney in ELPC’s Columbus office. “There are a lot of factors. There’s been a change in administration in Ohio. The legislature wants to change the renewable energy law. There are other setbacks that lead to delay and layoffs. It’s hurting the industry.” It’s not that Ohio has stopped generating power from new renewable energy installations. Iberdrola Renewables is getting ready to open a 304-megawatt wind farm in western Ohio, where another company opened a 100-megawatt wind farm last year. A 50-megawatt solar installation is planned for southern Ohio, along with a factory to build solar panels in Toledo. Nationwide, installed capacity for wind and solar power is small but growing briskly. But solar energy manufacturers in Ohio and elsewhere are going out of business and wind energy suppliers are laying off workers, victims of competition from foreign manufacturers, low prices for natural gas, and uncertainty in renewing the federal production tax credit for wind power. Iberdrola Renewables laid off 50 of its 900-member staff in January and the company’s executives say an amendment to Ohio’s renewable energy law would make it much harder to finance new wind farms in the state. The proposal, which Republican Governor John Kasich supports, would enable AK Steel, an Ohio steelmaker, to use state renewable energy credits to develop electricity from waste gases from its blast furnace. The co-generation project, notes Eric Thumma, Iberdrola’s director of policy and regulatory affairs, is itself fueled in part by non-renewable natural gas. AK Steel’s co-generation technology, the company asserts, fits into clean and renewable energy development in Ohio. The U.S. Department of Energy has already approved a $30 million grant for the project. Gov. Kasich, who has introduced a new state energy plan that emphasizes fossil fuel production, has said repeatedly that using waste heat or gases from industrial processes to generate electricity should qualify for renewable energy credits. But there is already more than enough wind energy in operation or planned to soak up the available credits, says Thumma. The AK Steel project would add 100 megawatts of new power to the already saturated market and essentially render the renewable credits worthless. “It will crash the market for wind as a renewable energy in Ohio,” says Thumma. Contrast the unsettled economics of Ohio’s renewable energy industry with the massing industrialization by the state’s fossil fuel sector. Some $3 billion is being spent on drilling, leasing, pipeline construction, and supply chain manufacturing to serve the fossil fuel sector, according to the Ohio Department of Natural Resources. One new steel plant is opening in Youngstown and three others in Lorain and Canton are expanding to meet demand for drilling pipe and other equipment.

#### Extraction of nat gas releases methane – causes warming.

Romm, Senior Fellow at American Progress, editor of Climate Progress, assistant secretary of energy for energy efficiency and renewable energy in 1997, Ph.D. in physics from MIT, ‘11

[Joe, “Natural Gas Bombshell: Switching From Coal to Gas Increases Warming for Decades, Has Minimal Benefit Even in 2100,” 9-9-11,

http://thinkprogress.org/climate/2011/09/09/315845/natural-gas-switching-from-coal-to-gas-increases-warming-for-decades/]

A key finding of the NCAR study is: In summary, our results show that the substitution of gas for coal as an energy source results in increased rather than decreased global warming for many decades — out to the mid 22nd century for the 10% leakage case. This is in accord with Hayhoe et al. (2002) and with the less well established claims of Howarth et al. (2011) who base their analysis on Global Warming Potentials rather than direct modeling of the climate…. The most important result, however, in accord with the above authors, is that, unless leakage rates for new methane can be kept below 2%, substituting gas for coal is not an effective means for reducing the magnitude of future climate change. What is the leakage rate for methane? Well, as I’ve written, we don’t know exactly because the gas companies won’t release all of their data. We do know that total life-cycle leakage and fugitive emissions from extraction, production, transport, and consumption is higher for shale gas than conventional gas. The controversial — but peer-reviewed — paper by Cornell’s Robert Howarth, which I wrote about here, seeks to quantify the impact of the leakage from the best available data. It concluded: Natural gas is composed largely of methane, and 3.6% to 7.9% of the methane from shale-gas production escapes to the atmosphere in venting and leaks over the life-time of a well. These methane emissions are at least 30% more than and perhaps more than twice as great as those from conventional gas. The higher emissions from shale gas occur at the time wells are hydraulically fractured — as methane escapes from flow-back return fluids — and during drill out following the fracturing. Methane is a powerful greenhouse gas, with a global warming potential that is far greater than that of carbon dioxide, particularly over the time horizon of the first few decades following emission.

#### No advantage – natural gas is worse for greenhouse gas emissions

Howarth et al. 11 (Robert, Renee Santoro, Anthony Ingraffea, 12 April, “Methane and the greenhouse-gas footprint of natural gas from shale formations”, Climatic Change)

6 Shale gas versus other fossil fuels¶ Considering the 20-year horizon, the GHG footprint for shale gas is at least 20%¶ greater than and perhaps more than twice as great as that for coal when expressed per¶ quantity of energy available during combustion (Fig. 1a; see Electronic Supplemental¶ Materials for derivation of the estimates for diesel oil and coal). Over the 100-year¶ frame, the GHG footprint is comparable to that for coal: the low-end shale-gas¶ emissions are 18% lower than deep-mined coal, and the high-end shale-gas emissions¶ are 15% greater than surface-mined coal emissions (Fig. 1b). For the 20 year horizon,¶ the GHG footprint of shale gas is at least 50% greater than for oil, and perhaps 2.5-¶ times greater. At the 100-year time scale, the footprint for shale gas is similar to or¶ 35% greater than for oil.¶ We know of no other estimates for the GHG footprint of shale gas in the peer reviewed¶ literature. However, we can compare our estimates for conventional gas¶ with three previous peer-reviewed studies on the GHG emissions of conventional¶ natural gas and coal: Hayhoe et al. (2002), Lelieveld et al. (2005), and Jamarillo et al.¶ (2007). All concluded that GHG emissions for conventional gas are less than for¶ coal, when considering the contribution of methane over 100 years. In contrast, our¶ analysis indicates that conventional gas has little or no advantage over coal even¶ over the 100-year time period (Fig. 1b). Our estimates for conventional-gas methane¶ emissions are in the range of those in Hayhoe et al. (2002) but are higher than those¶ in Lelieveld et al. (2005) and Jamarillo et al. (2007) who used 1996 EPA emission¶ factors now known to be too low (EPA 2010). To evaluate the effect of methane, all¶ three of these studies also used global warming potentials now believed to be too low¶ (Shindell et al. 2009). Still, Hayhoe et al. (2002) concluded that under many of the¶ scenarios evaluated, a switch from coal to conventional natural gas could aggravate¶ global warming on time scales of up to several decades.

### Solvency

#### Fees and price adjustments deter investment in exports- long term expectations are key and bleak

Denning 12 (Liam, Wall Street Journal staff , "Gas export profits might leak away," 8-12-12, www.theaustralian.com.au/business/wall-street-journal/gas-export-profits-might-leak-away/story-fnay3x58-1226449122081, accessed 8-16-12, mss)

THE latest free lunch being peddled involves exporting US natural gas. Don't be surprised if it evaporates. Headline US gas futures bounce around $3 per million British thermal units. Meanwhile, Japan imports liquefied natural gas, or LNG, for about $17. That spread is why companies such as Cheniere Energy are racing to build plants to export US gas. But if "$3 in, $17 out" sounds too good to be true, that is because it is. While the economics of exports can make sense, they are no slam-dunk. First, the actual cost of delivering US gas overseas would be much higher than $3. According to consultancy PFC Energy, a number of upward adjustments must be made. As the contract that Spain's Gas Natural Fenosa signed last year with Cheniere indicates, the buyer typically pays a premium over the market price of gas. This amount, say 15 per cent, covers the cost to the facility operator of gas lost during liquefaction. That takes the price to $3.45. Then you need to add on the fee for liquefaction, roughly $2.50 to $3. Shipping fees, meanwhile, range anywhere from about 85c to almost $2.80 depending on whether you're going to Europe or Asia and the route you take. Finally, in Europe the main competition is pipeline gas from places like Russia. So to be truly comparable, you must add in the cost of converting the LNG back to gas, perhaps another 40c. All in, therefore, at a $3 gas price, US LNG costs about $7.25 in Europe and $9.20 in Japan, using PFC's assumptions. Based on current prices, that still leaves a nice margin of about $5 in Europe and almost $8 in Japan. If that still looks like a no-brainer, you are forgetting one thing: time. The earliest the US is likely to start gas exports is in 2015. Moreover, contracts for capacity at LNG plants typically span 20 years. Long-term expectations are critical, therefore. US gas prices are expected to rise - in part because exports should help relieve the current supply glut. Futures for 2016 to 2020 average about $5 and analysts and producers assume long-term prices of $6 or more. Meanwhile, European and Asian gas prices are linked to that of oil. As a rule of thumb, oil-linked gas in Europe commands about 12 per cent of the quoted price of Brent crude; in Asia the ratio is about 15 per cent. Assuming $100 a barrel Brent crude long-term, this implies prices of $12 and $15 respectively. Suddenly, the margins drop to $1.30 and $2.34 for Europe and Japan, respectively. This is still positive, but much thinner. As Nikos Tsafos, gas specialist at PFC, puts it: "I don't need to mess with the model so much to make it not work." Push gas to $7 and Brent to $90 - more in line with historical price ratios - and both margins go negative. Indeed, Deutsche Bank sees no arbitrage opportunity for US LNG targeting the UK after 2016 based on current futures prices. Shipping and processing costs could rise. Oil and gas prices bounce around. And political opposition to gas exports, on the premise that they raise domestic energy prices, is a wild card. This won't prevent exports. But it limits the likely buyers of liquefaction capacity. Integrated global gas companies seeking to capitalise on short-term arbitrage opportunities, such as BG, are one small set. Utilities in uncompetitive markets where costs can more easily be passed on to consumers, such as in Asia, are another. Less than a decade ago, the energy world was abuzz with plans to dot the US coastline with gas import terminals in anticipation of steep declines in domestic output and rising prices. Today's excitable export enthusiasts would do well to recall how that one turned out.

#### Exports are self-defeating- the first wave would collapse the price differential and make it uneconomical

Levi 12 (Michael, CFR energy senior fellow, PhD in war studies from the University of London, Council on Foreign Relations Energy and the Environment senior fellow, Program on Energy Security and Climate Change director, "A Strategy for U.S. Natural Gas Exports," June, www.brookings.edu/~/media/research/files/papers/2012/6/13%20exports%20levi/06\_exports\_levi.pdf, accessed 8-16-12, mss)

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.

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#### Large-scale bioterror is impossible—multiple warrants and cites experts

Krauss 3/16/12 (Lawrence, Foundation Professor and Director of the Arizona State University Origins Project, “Countdown to the Man-Made Apocalypse,” 3/16/2012, <http://www.slate.com/articles/health_and_science/future_tense/2012/03/the_doomsday_clock_from_the_bulletin_of_atomic_scientists_tackles_biotechnology_.html>, NP)

We should encourage the vigilance and rigorous discussion that has accompanied these developments. Happily, however, the bulletin’s experts, including Harvard biologist Matthew Meselson and human genome pioneer and synthetic biologist Craig Venter, suggest the above scenarios are in the near term unlikely at best, pure fiction at worst. In the first place, the synthetic-biology industry is well-aware of the dangers of unmonitored genetic hacking and is responding on its own. Appeased by the group’s self-policing thus far, the Presidential Commission for the Study of Bioethical Issues determined in 2010 that “there is no reason to endorse additional federal regulations or a moratorium on work in this field at this time.” In the second place, while manufacturing dangerous biological compounds may be possible, weaponizing them is not so easy. While it might be possible to inflict significant terror locally, dispersing biological agents over broad regions to create global crises is far more challenging. Next, there is the difficulty of reproducing appropriate technology. The field is as much an art as a science, and it is difficult to reliably reproduce results in a field where the financial benefits are likely to be so great that proprietary technology is not readily shared. We can all (at least those of us who, unlike some of the dominant presidential candidates, accept the reality of both evolution and an old earth) take solace in the robustness of life itself, evolved over 4.5 billion years in the presence of remarkably ingenious viruses, which have also competed for survival. It is unlikely that a new organism, without the benefit of all of this “learned experience,” could outmaneuver all the mechanisms that life has developed to outwit constant biological invaders. All of this suggested to those of us who have the unenviable task of regularly revisiting the possibility of Doomsday in order to help humanity adjust its thinking appropriately, that the current revolution in biotechnology is, for the moment, more likely to benefit humankind than destroy it.

#### Cyberattacks impossible – empirics and defenses solve.

Rid, Reader in War Studies at King’s College London, ‘12

[Thomas, author of "Cyber War Will Not Take Place" and co-author of "Cyber-Weapons”, “Think Again: Cyberwar”,

http://www.foreignpolicy.com/articles/2012/02/27/cyberwar?page=full]

"Cyberwar Is Already Upon Us." No way. "Cyberwar is coming!" John Arquilla and David Ronfeldt predicted in a celebrated Rand paper back in 1993. Since then, it seems to have arrived -at least by the account of the U.S. military establishment, which is busy competing over who should get what share of the fight. Cyberspace is "a domain in which the Air Force flies and fights," Air Force Secretary Michael Wynne claimed in 2006. By 2012, William J. Lynn III, the deputy defense secretary at the time, was writing that cyberwar is "just as critical to military operations as land, sea, air, and space." In January, the Defense Department vowed to equip the U.S. armed forces for "conducting a combined arms campaign across all domains -land, air, maritime, space, and cyberspace." Meanwhile, growing piles of books and articles explore the threats of cyberwarfare, cyberterrorism, and how to survive them. Time for a reality check: Cyberwar is still more hype than hazard. Consider the definition of an act of war: It has to be potentially violent, it has to be purposeful, and it has to be political. The cyberattacks we've seen so far, from Estonia to the Stuxnet virus, simply don't meet these criteria. Take the dubious story of a Soviet pipeline explosion back in 1982, much cited by cyberwar's true believers as the most destructive cyberattack ever. The account goes like this: In June 1982, a Siberian pipeline that the CIA had virtually booby-trapped with a so-called "logic bomb" exploded in a monumental fireball that could be seen from space. The U.S. Air Force estimated the explosion at 3 kilotons, equivalent to a small nuclear device. Targeting a Soviet pipeline linking gas fields in Siberia to European markets, the operation sabotaged the pipeline's control systems with software from a Canadian firm that the CIA had doctored with malicious code. No one died, according to Thomas Reed, a U.S. National Security Council aide at the time who revealed the incident in his 2004 book, At the Abyss; the only harm came to the Soviet economy. But did it really happen? After Reed's account came out, Vasily Pchelintsev, a former KGB head of the Tyumen region, where the alleged explosion supposedly took place, denied the story. There are also no media reports from 1982 that confirm such an explosion, though accidents and pipeline explosions in the Soviet Union were regularly reported in the early 1980s. Something likely did happen, but Reed's book is the only public mention of the incident and his account relied on a single document. Even after the CIA declassified a redacted version of Reed's source, a note on the so-called Farewell Dossier that describes the effort to provide the Soviet Union with defective technology, the agency did not confirm that such an explosion occurred. The available evidence on the Siberian pipeline blast is so thin that it shouldn't be counted as a proven case of a successful cyberattack. Most other commonly cited cases of cyberwar are even less remarkable. Take the attacks on Estonia in April 2007, which came in response to the controversial relocation of a Soviet war memorial, the Bronze Soldier. The well-wired country found itself at the receiving end of a massive distributed denial-of-service attack that emanated from up to 85,000 hijacked computers and lasted three weeks. The attacks reached a peak on May 9, when 58 Estonian websites were attacked at once and the online services of Estonia's largest bank were taken down. "What's the difference between a blockade of harbors or airports of sovereign states and the blockade of government institutions and newspaper websites?" asked Estonian Prime Minister Andrus Ansip. Despite his analogies, the attack was no act of war. It was certainly a nuisance and an emotional strike on the country, but the bank's actual network was not even penetrated; it went down for 90 minutes one day and two hours the next. The attack was not violent, it wasn't purposefully aimed at changing Estonia's behavior, and no political entity took credit for it. The same is true for the vast majority of cyberattacks on record. Indeed, there is no known cyberattack that has caused the loss of human life. No cyberoffense has ever injured a person or damaged a building. And if an act is not at least potentially violent, it's not an act of war. Separating war from physical violence makes it a metaphorical notion; it would mean that there is no way to distinguish between World War II, say, and the "wars" on obesity and cancer. Yet those ailments, unlike past examples of cyber "war," actually do kill people. "A Digital Pearl Harbor Is Only a Matter of Time." Keep waiting. U.S. Defense Secretary Leon Panetta delivered a stark warning last summer: "We could face a cyberattack that could be the equivalent of Pearl Harbor." Such alarmist predictions have been ricocheting inside the Beltway for the past two decades, and some scaremongers have even upped the ante by raising the alarm about a cyber 9/11. In his 2010 book, Cyber War, former White House counterterrorism czar Richard Clarke invokes the specter of nationwide power blackouts, planes falling out of the sky, trains derailing, refineries burning, pipelines exploding, poisonous gas clouds wafting, and satellites spinning out of orbit -events that would make the 2001 attacks pale in comparison. But the empirical record is less hair-raising, even by the standards of the most drastic example available. Gen. Keith Alexander, head of U.S. Cyber Command (established in 2010 and now boasting a budget of more than $3 billion), shared his worst fears in an April 2011 speech at the University of Rhode Island: "What I'm concerned about are destructive attacks," Alexander said, "those that are coming." He then invoked a remarkable accident at Russia's Sayano-Shushenskaya hydroelectric plant to highlight the kind of damage a cyberattack might be able to cause. Shortly after midnight on Aug. 17, 2009, a 900-ton turbine was ripped out of its seat by a so-called "water hammer," a sudden surge in water pressure that then caused a transformer explosion. The turbine's unusually high vibrations had worn down the bolts that kept its cover in place, and an offline sensor failed to detect the malfunction. Seventy-five people died in the accident, energy prices in Russia rose, and rebuilding the plant is slated to cost $1.3 billion. Tough luck for the Russians, but here's what the head of Cyber Command didn't say: The ill-fated turbine had been malfunctioning for some time, and the plant's management was notoriously poor. On top of that, the key event that ultimately triggered the catastrophe seems to have been a fire at Bratsk power station, about 500 miles away. Because the energy supply from Bratsk dropped, authorities remotely increased the burden on the Sayano-Shushenskaya plant. The sudden spike overwhelmed the turbine, which was two months shy of reaching the end of its 30-year life cycle, sparking the catastrophe. If anything, the Sayano-Shushenskaya incident highlights how difficult a devastating attack would be to mount. The plant's washout was an accident at the end of a complicated and unique chain of events. Anticipating such vulnerabilities in advance is extraordinarily difficult even for insiders; creating comparable coincidences from cyberspace would be a daunting challenge at best for outsiders. If this is the most drastic incident Cyber Command can conjure up, perhaps it's time for everyone to take a deep breath. "Cyberattacks Are Becoming Easier." Just the opposite. U.S. Director of National Intelligence James R. Clapper warned last year that the volume of malicious software on American networks had more than tripled since 2009 and that more than 60,000 pieces of malware are now discovered every day. The United States, he said, is undergoing "a phenomenon known as 'convergence,' which amplifies the opportunity for disruptive cyberattacks, including against physical infrastructures." ("Digital convergence" is a snazzy term for a simple thing: more and more devices able to talk to each other, and formerly separate industries and activities able to work together.) Just because there's more malware, however, doesn't mean that attacks are becoming easier. In fact, potentially damaging or life-threatening cyberattacks should be more difficult to pull off. Why? Sensitive systems generally have built-in redundancy and safety systems, meaning an attacker's likely objective will not be to shut down a system, since merely forcing the shutdown of one control system, say a power plant, could trigger a backup and cause operators to start looking for the bug. To work as an effective weapon, malware would have to influence an active process -but not bring it to a screeching halt. If the malicious activity extends over a lengthy period, it has to remain stealthy. That's a more difficult trick than hitting the virtual off-button. Take Stuxnet, the worm that sabotaged Iran's nuclear program in 2010. It didn't just crudely shut down the centrifuges at the Natanz nuclear facility; rather, the worm subtly manipulated the system. Stuxnet stealthily infiltrated the plant's networks, then hopped onto the protected control systems, intercepted input values from sensors, recorded these data, and then provided the legitimate controller code with pre-recorded fake input signals, according to researchers who have studied the worm. Its objective was not just to fool operators in a control room, but also to circumvent digital safety and monitoring systems so it could secretly manipulate the actual processes. Building and deploying Stuxnet required extremely detailed intelligence about the systems it was supposed to compromise, and the same will be true for other dangerous cyberweapons. Yes, "convergence," standardization, and sloppy defense of control-systems software could increase the risk of generic attacks, but the same trend has also caused defenses against the most coveted targets to improve steadily and has made reprogramming highly specific installations on legacy systems more complex, not less.

### LNG Exports

#### Cheaper to develop low-cost gas that ship it to more lucrative markets- transportation costs prevent exports

Moniz et al., Professor at MIT, 2011

[June 6, ERNEST J. MONIZ — CHAIR ¶ Cecil and Ida Green Professor of Physics ¶ and Engineering Systems, MIT ¶ Director, MIT Energy Initiative (MITEI) ¶ ROBERT C. ARMSTRONG ¶ Chevron Professor, Department of Chemical ¶ Engineering, MIT ¶ Deputy Director, MITEI ¶ DANIEL R. COHN ¶ Senior Research Scientist, Plasma Science ¶ and Fusion Center, MIT ¶ Executive Director, Natural Gas Study ¶ STEPHEN R. CONNORS ¶ Research Engineer, MITEI ¶ JOHN M. DEUTCH ¶ Institute Professor, ¶ Department of Chemistry, MIT ¶ QUDSIA J. EJAZ ¶ Postdoctoral Associate, MITEI ¶ JOSEPH S. HEZIR ¶ Visiting Engineer, MITEI ¶ GORDON M. KAUFMAN ¶ Morris A. Adelman Professor of Management ¶ (Emeritus), MIT ¶ MELANIE A. KENDERDINE ¶ Executive Director, MITEI ¶ FRANCIS O’SULLIVAN ¶ Research Engineer, MITEI ¶ SERGEY PALTSEV ¶ Principal Research Scientist, Joint Program on ¶ the Science and Policy of Global Change, MIT ¶ JOHN E. PARSONS ¶ Senior Lecturer, Sloan School of Management, MIT ¶ Executive Director, Joint Program on the ¶ Science and Policy of Global Change and ¶ Center for Energy and Environmental ¶ Policy Research, MIT¶ IGNACIO PEREZ-ARRIAGA ¶ Professor of Electrical Engineering, ¶ Comillas University, Spain ¶ Visiting Professor, Engineering Systems Division, MIT ¶ JOHN M. REILLY ¶ Senior Lecturer, Sloan School of Management, MIT ¶ Co-Director, Joint Program on the Science ¶ and Policy of Global Change, MIT ¶ CAROLYN SETO ¶ Clare Boothe Luce Postdoctoral Fellow, ¶ Department of Chemical Engineering, MIT ¶ MORT D. WEBSTER ¶ Assistant Professor, Engineering Systems ¶ Division, MIT, “The Future of Natural Gas,” http://mitei.mit.edu/system/files/NaturalGas\_Report.pdf]

Figure 2.9 depicts a set of global supply curves, ¶ which describe the resources of gas that can be ¶ developed economically at given prices at the ¶ point of export.The higher the price, the more ¶ gas will ultimately be developed. Much of the ¶ global supply can be developed economically ¶ with relatively low prices at the wellhead or the ¶ point of export.¶ 8¶ However, the cost of delivering ¶ this gas to market is generally considerably ¶ higher. ¶ In contrast to oil, the total cost of delivering gas ¶ to international markets is strongly inﬂuenced ¶ by transportation costs, either via long-distance ¶ pipeline or as LNG. Transportation costs will ¶ obviously be a function of distance, but by way¶ of illustration, resources that can be economically ¶ developed at a gas price of $1 or $2/million ¶ British thermal units (MMBtu) may well require ¶ an additional $3 to $5/MMBtu of transport costs ¶ to get to their ultimate destination. These high ¶ transportation costs are also a signiﬁcant factor ¶ in the evolution of the global gas market.¶ Figure 2.10 depicts the mean gas supply curves ¶ for those EPPA regions that contain signiﬁcant ¶ gas resources. Again, this illustrates the signiﬁcant ¶ concentration of gas resources in the world.

#### Infrastructure modernization burdens the industry- they wo’nt take the initiative

Ebinger, senior fellow at Brookings, 2012,

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Even if there is sufficient transportation infrastructure to handle increased volumes and new ¶ regional bases for natural gas production, there ¶ may be limits on the amount of available equipment and qualified petroleum engineers to develop the gas. To date such a shortage of drilling rig availability in the U.S. natural gas sector ¶ has not materialized, as figure 3 illustrates. The ¶ increased productivity of new drilling rigs has ¶ served to ensure that supply has kept pace with ¶ demand. For example, in the Haynesville Shale ¶ play in Louisiana, the rig count fell from 181 rigs ¶ in July 2010 to 110 rigs in October 2011, yet production increased from 4.65 bcf/day to 7.58 bcf/¶ day over the same period.¶ 34¶ A similar trend is ¶ occurring in the Barnett Shale in Texas, where ¶ production rates have remained flat despite a ¶ declining rig count.¶ 35¶ While the supply of drilling rigs remains adequate, the market for other ¶ equipment and services used for fracking—particularly high-pressure pumping equipment—is ¶ tight and likely to remain so for the near term.¶ 36¶ Tight markets for drilling and completion equipment can result in increases in fracking costs.

#### Port infrastructure can’t accommodate an export world

Ebinger, senior fellow at Brookings, 2012,

[May, Charles Ebinger is a senior fellow and director of the Energy Security Initiative at Brookings. He has more than 35 years of experience specializing in international and domestic energy markets (oil, gas, coal, and nuclear) and the geopolitics of energy, and has served as an energy policy advisor to over 50 governments. He has served as an adjunct professor in energy economics at the Johns Hopkins School of Advanced International Studies and Georgetown University’s Walsh School of Foreign Service.“Liquid Markets: Assessing the Case for U.S. Exports of Liquefied Natural Gas,” http://www.brookings.edu/~/media/research/files/reports/2012/5/02%20lng%20exports%20ebinger/0502\_lng\_exports\_ebinger]

The successful export of LNG will depend upon ¶ the necessary shipping infrastructure and capacity being in place. Cheniere Energy is looking to ¶ export up to 2.2 bcf/day of gas from its Sabine Pass ¶ LNG terminal in Louisiana.¶ 39¶ Depending on the ¶ size of the LNG vessel, this would require between ¶ three and five supertankers per week. In order to ¶ accommodate this volume of large ships, some domestic U.S. ports will require additional dredging. ¶ Other shipping-related concerns include security ¶ of vessels and the adequacy of Coast Guard capacity to provide that security (exporters must meet ¶ Coast Guard Waterway Suitability, Security, and ¶ Emergency standards prior to approval); and the ¶ capacity of sea lanes, particularly to Asia. Increasing shipments to Asia will depend on the capacity of the Panama Canal, which is currently too ¶ small to accommodate most LNG tankers. However, after the planned expansion of the canal is ¶ completed—expected to be in 2014—roughly 80 ¶ percent of the world’s LNG tankers will be able to ¶ pass through the isthmus, resulting in a dramatic ¶ decline in shipping costs to Asia.¶ 40

#### No aggression -- the Russian military is in terrible shape.

Goure, Vice President of the Lexington Institute and analyst on national security and military issues for NBC, ‘11

[Daniel, “Russian Military’s Decline Continues”, Lexington Institute, July 12, 2011, http://www.lexingtoninstitute.org/russian-militarys-decline-continues?a=1&c=1171, Callahan]

The past 20 years has been a tale of near-continuous decline for the ex-Soviet military. Once it was the largest military force on the planet. Of late it has fallen to a mere shadow of its former self. So low have the fortunes of Russia’s conventional military fallen that it was barely able to defeat Georgia in their short conflict in 2008. The Soviet Union was once known for its massive nuclear arsenal. Now it is barely able to maintain a viable force; most of its systems are obsolescent and aging badly. Even in the absence of new arms control agreements with the United States, Russia would be forced to significantly cut back its nuclear arsenal. According to a senior Russian government official, the situation continues to deteriorate. In a recent interview for a Russian newspaper, reported on by Leon Aron in Foreign Policy, Yuri Solomonov, that country’s chief missile designer, took on his country’s President Dimitry Medvedev. This move is significant for Russian politics, since Medvedev is seeking to extend his tenure against the wishes of current prime minister and former President Vladimir Putin who wants his old job back. Medvedev is associated with a military reform program that was intended to transform the Russian military. But in his critique Solomonov revealed that Russia’s military is heading for the ash heap. According to Solomonov, Russia is now dependent on the West for critical technologies to keep its nuclear forces in operation. The military reform program, which required a massive increase in the production of modern aircraft, ground combat systems and ships, has essentially collapsed because of weaknesses in the Russian defense industrial base. Equally interesting, Solomonov criticizes President Medvedev for his efforts to threaten Europe and the United States over its current plans to deploy a theater missile defense system. The Kremlin leader had suggested that Russia could respond to the deployment of the Aegis Ashore theater missile defense system with countervailing deployments of theater nuclear missiles. Solomonov says that Medvedev is threatening the West with a military deployment that "does not exist, did not exist, and will not exist." In addition, the Russian missile designer pointed out something which Western advocates of limited missile defenses have said for years: the Russian ICBM force could overwhelm such a defense. The Obama Administration’s effort to reset this nation’s strategic relations with Russia is based in large part on the belief that our counterpart in the decades old strategic pas de deux is still a player. In fact, it is clear that Russia continues to decline as a military and economic power even as its politics become more Byzantine. No effort at arms control will be able to mask Russia’s military decline.