# Round 3 vs. Michigan State GT (Neg)

### 1

#### Renewables are competitive now and key to solve warming.

Tickell, ‘12

[Oliver, British journalist, author and campaigner on health and environment issues, and author of the Kyoto2 climate initiative, “Does the world need nuclear power to solve the climate crisis?” http://www.guardian.co.uk/environment/2012/aug/20/world-need-nuclear-power-climate-crisis]

However, non-hydro renewables are growing very fast – up 15% in 2010. And within this figure just three power sources are responsible for most of the growth: wind power, solar PV and solar hot water. From 2005 to 2010, global solar hot water and wind power capacity both grew at 25% per year, while solar PV capacity grew at over 50% per year. If these growth rates were to be sustained for 35 years, wind capacity would rise 6,300-fold from 200 gigawatts (GW) in 2010 to about 1.25 million GW, solar hot water 6,300-fold from 185 GW to 1.15 million GW, and solar PV 40 million-fold from 40 GW to 1.6 billion GW. These figures are not predictions. Exponential growth will not continue for so long, as prime sites for wind turbines and solar panels get used up. Other technologies, such as concentrated solar power, will also become important. And there will be demand-side constraints: the projected 1.6 billion GW of solar PV capacity alone would produce over 3 billion billion kilowatt hours per year, equivalent to a primary energy burn of some 30 million Mtoe – over 1,000 times our projected world primary energy demand in 35 years. We would not even know what to do with so much energy. But while not predictive, the figures are highly indicative of the low-carbon energy choices the world should make. The one, nuclear power, is expensive and becoming more so. It will be a practical impossibility to increase its capacity to a scale big enough to make a real difference to global climate within a realistic time frame. Worse, if we were somehow to build our 11,000 nuclear reactors, we would face the certainty of repeated catastrophic accidents and the spread of nuclear weapons, not to mention unimaginable liabilities for decommissioning and long-term nuclear-waste management. We can fairly say that nuclear power is both repulsive and utterly wrong. The other choice, renewable power, already costs less than fossil fuels for many applications, thanks in large part to generous subsidies in Germany, Japan and other countries, which have had the effect of greatly reducing prices. Solar electricity is now cheaper than power from diesel generators in the tropics and subtropics – and so the rapid spread of solar power across China, India, Africa and Latin America is being driven not by subsidy but by the market. And it is getting cheaper all the time as increased demand, caused by its lower price, stimulates greater competition among manufacturers, technological advance, and even greater price falls, in a delightful virtuous circle. Moreover, renewable energy is free of catastrophic dangers and long- term liabilities. It is both romantic and right.

#### Nuclear power diverts resources away from renewable energy.

Porritt et al., ‘12

[Jonathan (founder director of Forum for the Future Forum for the future, chairman of the UK Sustainable Development Commission and author of Capitalism as if the World Matters), 4/27, with Tom Burke, Tony Juniper, Charles Secrett. “Climate Change and Energy Security.” http://www.jonathonporritt.com/sites/default/files/users/BRIEFING%205%20-%20Climate\_and%20energy%20security\_27\_April%202012.pdf]

The costs of nuclear new build are extremely high. UK governments, both Labour and the Coalition Government, have made it clear that money for new nuclear must come from the private sector, and yet, despite promising not to, have then gone on to attract private sector investment, thus committing large amounts of public money not available for other energy supply or demand management options. The scale of both the financial and the political investment required are such that they will crowd out equivalent investment in renewables and energy efficiency. The cost of the new nuclear build that Coalition Governments hopes for is in the region of £50 billion. Since private investors money is to be channelled through energy utilities (either as equity borrowing or simple bank lending), it will come from the same funding pools that other types of energy generation investment would access; part of the opportunity cost of nuclear power is that it will inevitably draw investment away from alternatives. But it’s not just the scale of the investment needed that undermines other possibilities. The massive timescales for bringing nuclear power online are also important - once investment has begun in nuclear, the entirety of the investment must remain in nuclear or be lost. Renewables are much nimbler – if problems occur, the project can be scaled down and still provide some generated energy. Lastly, there is a substantial political opportunity cost. When governments throw their weight behind a particular course of action, they divert resources from all others. In the past decade, UK governments of both parties have established over three dozen taxpayer-funded quangos and agencies to support the nuclear industry. It is inevitable that the pronuclear perspective of these bodies will pervade the thinking of the Civil Service, and of politicians and business investors too. Speaking about Finland’s experience with the disastrous Olkiluoto reactor, Oras Tynkynnen, a former climate policy advisor to the Office of the Finnish Prime Minister, said: “We concentrated so much on nuclear that we lost sight of everything else ... And nuclear has failed to deliver. It has turned out to be a costly gamble for Finland, and for the planet”.

#### 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 provide diminishing financial support for magnetic fusion energy generation in the United States but the recipients must become cost competitive and must improve in price and performance in order to continually receive this incentive.

#### Temporary, diminishing incentives are vital to inducing competition, technological innovation and ending subsidy dependence.

Jenkins, Director of Energy and Climate Policy at the Breakthrough Institute, ‘12

[Jesse, Congressional Testimony before the Senate Committee on Energy and Natural Resources, 5/22, http://www.energy.senate.gov/public/index.cfm/files/serve?File\_id=31b79a1a-83a0-4ae6-8c80-30fe754ad0ea]

Recognizing that investment horizons, technology development cycles, and market conditions vary across advanced energy technology segments, precise policy mechanisms will likely differ from sector to sector. Yet whether through production or investment subsidies, consumer rebates, market-­‐creating regulations or standards, or other market incentives, we recommend that any advanced energy deployment subsidies meet the following policy design criteria. Reformed policies should: 1. ESTABLISH A COMPETITIVE MARKET. Deployment policies should create market opportunities for advanced clean energy technologies while fostering competition between technology firms. 2. DRIVE COST REDUCTIONS AND PERFORMANCE IMPROVEMENTS. Deployment policies should create market incentives and structures that demand and reward continual improvement in technology performance and cost. 3. PROVIDE TARGETED AND TEMPORARY SUPPORT FOR MATURING TECHNOLOGIES. Deployment policies must not operate in perpetuity, but rather should be terminated if technology segments either fail to improve in price and performance or become competitive without subsidy. 4. REDUCE SUBSIDY LEVELS IN RESPONSE TO CHANGING TECHNOLOGY COSTS. Deployment incentives should decline as technologies improve in price and performance to both conserve limited taxpayer and consumer resources and provide clear incentives for continued technology improvement. 5. AVOID TECHNOLOGY LOCK-OUT AND PROMOTE A DIVERSE ENERGY PORTFOLIO. Deployment incentives should be structured to create market opportunities for energy technologies at different levels of maturity, including new market entrants, to ensure that each has a chance to mature while allowing technologies of similar maturity levels to compete amongst themselves. 6. PROVIDE SUFFICIENT BUSINESS CERTAINTY. While deployment incentives should be temporary, they must still provide sufficient certainty to support key business decisions by private firms and investors. 7. MAXIMIZE THE IMPACT OF TAXPAYER RESOURCES AND PROVIDE READY ACCESS TO AFFORDABLE PRIVATE CAPITAL. Deployment incentives should be designed to avoid creating unnecessarily high transaction costs while opening up clean tech investment to broader private capital markets.

#### Solves all of the aff better and avoids our DAs.

Hayward et al, ‘10

[Steven (Resident Scholar, American Enterprise Institute); Mark Muro (Senior Fellow, Metropolitan Policy Program, Brookings Institution); Ted Nordhaus and Michael Shellenberger (Cofounders, Breakthrough Institute), “POST-PARTISAN POWER”, October 2010, http://thebreakthrough.org/blog/Post-Partisan%20Power.pdf]

The government has a long history of successfully driving innovation and price declines in emerging technologies by acting directly as a demanding customer to spur the early commercialization and large- scale deployment of cutting-edge technologies. From radios and microchips to lasers and camera lenses, the federal government, in particular the DOD, has helped catalyze the improvement of countless innovative technologies and supported the emergence of vibrant American industries in the process. 67 Yet today’s mess of open-ended energy subsidies reward production of more of the same product, not innovation. The federal government showers subsidies across many energy options, from oil and coal to ethanol and wind power. None of these efforts, however, are designed or optimized to drive and reward innovation and ensure the prices of these technologies fall over time, making the subsidies effectively permanent. This must change. Competitive Deployment Incentives The current energy subsidy and deployment framework should be turned on its head. Government investments succeed not when they are blanket subsidies but rather when they are narrowly targeted to specific outcomes, such as developing computers to allow for rocket systems, building a communications network to survive a nuclear attack, or creating increasingly efficient and powerful jet engines. These public investments paid off handsomely in personal computers, the Internet, and gas turbines used in both commercial air travel as well as modern natural gas power plants. 68 In an era of expanding federal debt, across-the-board energy subsidy reform should be pursued. Incentives for energy technology deployment should be targeted and disciplined. Technologies should receive competitive deployment incentives only to the extent that they are becoming cheaper in unsubsidized terms over time. The strategy that we propose would be aimed at low-carbon technologies that, at a minimum, satisfy the following criteria:  The technology has been demonstrated and has proven technical feasibility at commercial scale;  Is currently priced above normal market rates and is locked out of markets by more mature, entrenched technology competitors;  Has potential for significant and sustained cost and performance improvements during deployment and scale-up; #Has strong prospects for significant market penetration once the technology reaches competitive Prices Targeted and competitive deployment incentives could be created for various classes of energy technologies to ensure that each has a chance to mature. Incentive levels should fall at regular intervals, terminating if the technology class either fails to improve in price or reaches cost parity in the absence of any further incentives. Structured in this manner, reformed national energy deployment incentives will not select winners and losers, nor will it create permanently subsidized industries. These public investments will instead provide opportunity for all emerging low-carbon energy technologies to demonstrate progress toward competitive costs while increasing the rate at which early-stage clean and affordable energy technologies are commercialized.

#### Only the CP can solve the future market crash – the impact is a loss of competitiveness.

Sweezy, Project Director for the Breakthrough Institute, ‘11

[Devon, “Clean Tech Sector Heading for a Major Crash”, July 11, 2011, http://blacklistednews.com/?news\_id=14600&print=1]

The global clean energy industry is set for a major crash. The reason is simple. Clean energy is still much more expensive and less reliable than coal or gas, and in an era of heightened budget austerity the subsidies required to make clean energy artificially cheaper are becoming unsustainable. Clean tech crashes are nothing new. The U.S. wind energy industry has collapsed three times before, first in the mid 1990s and most recently in 2002 and 2004 when Congress failed to extend the tax credit that made it profitable. But the impact and magnitude of the coming clean tech crash will far outstrip those of past years. As part of its effort to combat the economic recession, the federal government pumped nearly $80 billion in direct investment and tax credits into the clean energy sector, catalyzing an unprecedented industry expansion. Solar energy, for example, grew 67% in the United States in 2010. The U.S. wind energy industry also experienced unprecedented growth as a result of the generous Section 1603 clean energy stimulus program. The industry grew by 40% and added 10 GW of new turbines in 2009. Yet many of the federal subsidies that have driven such rapid growth are set to expire in the next few years, and clean energy remains unable to compete without them. The crash won’t be limited to the United States. In many European countries, clean energy subsidies have become budget casualties as governments attempt to curb mounting deficits. Spain, Germany, France, Italy and the Czech Republic have all announced cuts to clean energy subsidies. Such cuts are not universal, however. China, flush with cash, is bucking the trend, committing $760 billion over 10 years for clean energy projects. China is continuing to invest in low-carbon energy as a way of meeting its voracious energy demand, diversifying its electricity supply, and alleviating some of the negative health consequences of its reliance on fossil energy. If U.S. and European clean energy markets collapse while investment continues to ramp up in China, the short-term consequences will likely be a migration of much of the industry to Asia. As we wrote in our 2009 report, “Rising Tigers, Sleeping Giant,” this would have significant economic consequences for the United States, as the jobs, revenues and other benefits of clean tech growth accrue overseas. In the long-term, however, clean energy must become much cheaper and more reliable if it is to widely displace fossil fuels on the scale of national economies and become a commercially viable industry. Breaking the Boom-Bust Cycle Why is the United States still locked in this self-perpetuating boom-bust cycle in clean energy? The problem, according to a new essay by energy experts David Victor and Kassia Yanosek in this week's Foreign Affairs, is that our system of clean energy subsidization is jury-rigged to support the deployment of only the least-risky and most mature clean energy technologies, while lacking clear incentives for continual innovation that could make clean energy competitive on cost with conventional energy sources. Rather, we should "invest in more innovative technologies that stand a better chance of competing with conventional energy sources over the long haul." According to Victor and Yanosek, nearly seven-eighths of global clean energy investment goes toward deploying existing technologies that aren't competitive without subsidy, while only a small share goes to encouraging innovation in existing technologies or developing new ones. This must change. Rather than simply subsidize production of current technologies, we need a comprehensive energy innovation strategy to develop, manufacture, and deploy riskier but more promising clean energy technologies that may eventually compete with fossil energy at scale. Instead of rewarding companies for building the same product, we should reward companies who continuously improve designs and cut costs over time. Such a federal strategy will require major federal investments, but of a different kind than the subsidies that have driven the clean tech industry in years past. For starters, we must dramatically ramp up funding for early-stage clean energy research and development. A growing bipartisan group of think tanks and business leaders have pushed an investment of at least $15 billion annually in energy R&D, up from its current $4 billion level. Targeted funding is needed to solve technology challenges and ensure that innovative technologies can develop and improve. One key program that helps fulfill this need is ARPA-E, which funds a portfolio of innovative technology companies and helps connect them with private investors. But ARPA-E's budget has continually been under assault in budget negotiations, hampering its ability to catalyze innovation in the energy sector and limiting its impact. We also need to invest in cutting-edge advanced manufacturing capabilities and shared technology infrastructure that would help U.S. companies cut costs and improve manufacturing processes. As the President's Council of Advisors on Science and Technology wrote in a report released last week, manufacturing is vital to innovation, "because of the synergies created by locating production processes and design processes near to each other." Furthermore, bringing down manufacturing costs, such as by supporting shared infrastructure for small firms, or offering financing for the adoption of innovative technologies in manufacturing, will be a key component of reducing the costs of new clean energy innovations. Lastly, the nation's hodgepodge of energy deployment subsidies is in dire need of reform. As Breakthrough and colleagues wrote in "Post-Partisan Power," we need an energy deployment regime that demands and rewards innovation, rather than just supporting more of the same. Brookings' Mark Muro (a co-author or PPP) expands, "targeted and competitive deployment incentives could be createdfor various classes of energy technologies that would ensure that each has a chance to mature even as each is challenged to innovate and locate price declines." Rather than create permanently subsidized industries, such investments would "provide the opportunity for opportunity for all emerging low-carbon energy technologies to demonstrate progress toward competitive costs," while speeding commercialization. It is clear that the current budgetary environment in the United States presents challenges to the viability of the fast-growing clean energy industry. But it also presents an opportunity. By repurposing existing clean energy policies and investing in clean energy innovation, the United States can be the first country to make clean energy cheap and reliable, a distinction that is sure to bring major economic benefits in a multi-trillion dollar energy market.

#### Competitiveness key to prevent great power nuclear war.

Baru, Visiting Professor at the Lee Kuan Yew School of Public Policy in Singapore, ‘9

[Sanjaya, “Year of the power shift?,”

http://www.india-seminar.com/2009/593/593\_sanjaya\_baru.htm]

**T**here is no doubt that economics alone will not determine the balance of global power, but there is no doubt either that economics has come to matter for more. The management of the economy, and of the treasury, has been a vital aspect of statecraft from time immemorial. Kautilya’s *Arthashastra* says, ‘From the strength of the treasury the army is born. …men without wealth do not attain their objectives even after hundreds of trials… Only through wealth can material gains be acquired, as elephants (wild) can be captured only by elephants (tamed)… A state with depleted resources, even if acquired, becomes only a liability.’4 Hence, economic policies and performance do have strategic consequences.5 In the modern era, the idea that strong economic performance is the foundation of power was argued most persuasively by historian Paul Kennedy. ‘Victory (in war),’ Kennedy claimed, ‘has repeatedly gone to the side with more flourishing productive base.’6 Drawing attention to the interrelationships between economic wealth, technological innovation, and the ability of states to efficiently mobilize economic and technological resources for power projection and national defence, Kennedy argued that nations that were able to better combine military and economic strength scored over others. ‘The fact remains,’ Kennedy argued, ‘that all of the major shifts in the world’s *military-power* balance have followed alterations in the productive balances; and further, that the rising and falling of the various empires and states in the international system has been confirmed by the outcomes of the major Great Power wars, where victory has always gone to the side with the greatest material resources.’7 **I**n Kennedy’s view the geopolitical consequences of an economic crisis or even decline would be transmitted through a nation’s inability to find adequate financial resources to simultaneously sustain economic growth and military power – the classic ‘guns vs butter’ dilemma. Apart from such fiscal disempowerment of the state, economic under-performance would also reduce a nation’s attraction as a market, a source of capital and technology, and as a ‘knowledge power’. As power shifted from Europe to America, so did the knowledge base of the global economy. As China’s power rises, so does its profile as a ‘knowledge economy’. Impressed by such arguments the China Academy of Social Sciences developed the concept of Comprehensive National Power (CNP) to get China’s political and military leadership to focus more clearly on economic and technological performance than on military power alone in its quest for Great Power status.8 While China’s impressive economic performance and the consequent rise in China’s global profile has forced strategic analysts to acknowledge this link, the recovery of the US economy in the 1990s had reduced the appeal of the Kennedy thesis in Washington DC. We must expect a revival of interest in Kennedy’s arguments in the current context. **A** historian of power who took Kennedy seriously, Niall Ferguson, has helped keep the focus on the geopolitical implications of economic performance. In his masterly survey of the role of finance in the projection of state power, Ferguson defines the ‘square of power’ as the tax bureaucracy, the parliament, the national debt and the central bank. These four institutions of ‘fiscal empowerment’ of the state enable nations to project power by mobilizing and deploying financial resources to that end.9 Ferguson shows how vital sound economic management is to strategic policy and national power. More recently, Ferguson has been drawing a parallel between the role of debt and financial crises in the decline of the Ottoman and Soviet empires and that of the United States of America. In an early comment on the present financial crisis, Ferguson wrote: ‘We are indeed living through a global shift in the balance of power very similar to that which occurred in the 1870s. This is the story of how an over-extended empire sought to cope with an external debt crisis by selling off revenue streams to foreign investors. The empire that suffered these setbacks in the 1870s was the Ottoman empire. Today it is the US… It remains to be seen how quickly today’s financial shift will be followed by a comparable geopolitical shift in favour of the new export and energy empires of the east. Suffice to say that the historical analogy does not bode well for America’s quasi-imperial network of bases and allies across the Middle East and Asia. Debtor empires sooner or later have to do more than just sell shares to satisfy their creditors*. …*as in the 1870s the balance of financial power is shifting. Then, the move was from the ancient Oriental empires (not only the Ottoman but also the Persian and Chinese) to Western Europe. Today the shift is from the US – and other western financial centres – to the autocracies of the Middle East and East Asia.’10 An economic or financial crisis may not trigger the decline of an empire. It can certainly speed up a process already underway. In the case of the Soviet Union the financial crunch caused by the Afghan war came on top of years of economic under-performance and the loss of political legitimacy of the Soviet state. In a democratic society like the United States the political legitimacy of the state is constantly renewed through periodic elections. Thus, the election of Barack Obama may serve to renew the legitimacy of the state and by doing so enable the state to undertake measures that restore health to the economy. This the Soviet state was unable to do under Gorbachev even though he repudiated the Brezhnev legacy and distanced himself from it. Hence, one must not become an economic determinist and historic parallels need not always be relevant. Politics can intervene and offer solutions. Political economy and politics, in the form of Keynesian economics and the ‘New Deal’, did intervene to influence the geopolitical implications of the Great Depression. Whether they will do so once again in today’s America remains to be seen.

### 3

#### Immigration reform will pass – there’s a coalition of Democrats and moderate Republicans in the House.

Huffington Post 1/2 (Obama's Immigration Reform Push To Begin This Month , 2013, http://www.huffingtonpost.com/2013/01/02/obama-immigration-reform\_n\_2398507.html)

Good news for immigration advocates may have come Tuesday night, when Boehner broke the so-called "Hastert Rule" and allowed the fiscal cliff bill to come for a vote without support from a majority of his Republican conference. Given opposition to immigration reform by many Tea Party Republicans, the proof that Boehner is willing to bypass them on major legislation is a good sign, the Democratic aide said.¶ "If something is of such importance that the GOP establishment [is] telling Boehner, 'You must do this. You need to get this off the table soon,'" the Democratic aide said, the speaker could break the Hastert Rule again.¶ "He already did it with this fiscal issue, so I would not be surprised if when it came down to it he puts up a bill that he just allows to go through with a combination of Democratic and Republican votes, without worrying about a majority of the majority," the aide continued.¶ Frank Sharry, executive director of the pro-immigration reform group America's Voice, also said he thinks the House could pass an immigration bill in the same way it did last night, relying on support from both parties. He's hopeful that the fiscal cliff fight could even make them happy to work out legislation in a more standard way.¶ "I never thought I'd say this, but after bruising battles over the future of the American and world economy, the chance to legislate through regular order on immigration reform might have leaders in both parties working together and singing 'Kumbaya,'" Sharry said.

#### 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.

#### Nuclear fusion is a target – it’s the first to face budget cuts in tough times

Vastag 12 (Brian Vastag, Science reporter at The Washington Post, “Budget cuts threaten pursuit of nuclear fusion as a clean energy source”, June 25, http://www.washingtonpost.com/national/health-science/budget-cuts-threaten-pursuit-of-nuclear-fusion-as-a-clean-energy-source/2012/06/25/gJQAKlpS2V\_story.html)

The Princeton lab’s stellerator will not receive additional funding and so will remain unfinished, said Ed Synakowski, head of fusion research for the Energy Department. “Fusion is hard. The stakes are high,” Synakowski said. “But the potential payoff could be enormous for mankind.” If the MIT lab is shuttered as planned — Congress has not yet voted on next year’s budget — fewer scientists will be drawn into the field, Prager says. And he worries that the United States will lose the expertise it needs to capi­tal­ize on lessons learned from ITER. Already, the United States has cut way back on investment in fusion. In the 1980s and early 1990s, the Energy Department spent about three times more than it does now. Progress has been slow, and the technical hurdles remain high. Even Prager, the most optimistic of fusion scientists, says that a fusion reactor that could pump electricity into the grid wouldn’t be feasible until at least 2035 — and that’s only with the help of generous funding. The main challenge is handling superhot balls of gas called plasmas. In another big room at the Princeton lab sits a two-story-tall, apple-shaped device that’s designed to do just that. Known as the National Spherical Torus Experiment, the machine is out of commission until 2014 for a $94 million upgrade that will more than double its power. Inside its silvery vacuum chamber, microwaves and other sources of energy will excite hydrogen atoms to temperatures hotter than the sun. As these atoms fuse, a hard-to-control plasma will pop into existence. Magnetic fields will squeeze this plasma to keep it contained. “It’s like trying to hold jello with rubber bands,” says Mike Williams, the lab’s head engineer. “How do you do that in a stable way?” No one has a complete answer yet. Even when the upgrade is complete, the device will produce a plasma for just five seconds at a pop. The goal of the ITER experiment is to produce a plasma for 10, 20, 30 seconds, maybe a minute. If successful, ITER will be the first plasma that generates more power than it consumes — although it won’t generate electricity. For future fusion power plants, such plasmas will have to be kept going indefinitely. Then would come more challenges: What materials can withstand that sustained heat? And how will this heat be converted into electricity? Fusion scientists have plenty of possible solutions they want to test, said George “Hutch” Neilson, the Princeton lab’s deputy head. But he said there is no national or international road map for moving from the relatively small plasma experiments of today to the operational power plants of tomorrow. “There’s enormous debate on how to get there,” says Prager. And little political support in the United States for the needed investment. Obama has said that he favors an “all of the above” energy strategy: more drilling for gas and oil, more investment in solar and wind, more traditional nuclear. Fusion, however, is absent from the list. Energy Secretary Steven Chu rarely mentions it. But at a March Senate hearing on his agency’s budget request, Sen. Diane Feinstein (D-Calif.) forced the Nobel Prize-winning physicist to address the president’s proposed cuts. Chu said, “[W]e are working . . . to see if we [can] satisfy both the needs of the fusion community in the U.S. and this ITER commitment, but in these tight budget times, it’s tough.” In February, the nation’s top fusion scientists met at an Energy Department advisory committee meeting. For hours they wrangled with the “doom and gloom” of the budget proposal, said Martin Greenwald, an MIT plasma physicist and head of the committee.

#### Immigration reform would save the economy - boosts the GDP by 1.5 billion dollars

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/)

The policy arguments in favor of common-sense immigration policies that chart a path to legal status for unauthorized immigrants are as numerous as they are compelling. Indeed, the only sensible approach from a fiscal, economic, social, and security perspective is to create a roadmap for these immigrants to earn citizenship.¶ More than two-thirds of the immigrants working without papers in the United States have contributed to our economy and culture for more than a decade. But our outdated and misguided immigration policies, along with our polarized immigration politics, block them from realizing their—and our nation’s—full potential and forces them to live in fear of being ripped from their families.¶ Let’s take a brief look at some of the benefits:¶ Bringing these hard-working immigrants off the economic sidelines would generate a $1.5 trillion boost to the nation’s cumulative GDP over 10 years and add close to $5 billion in additional tax revenue in just the next three years.¶ Registering these immigrants with background checks would ensure that we know who is here and will enable our authorities to focus enforcement resources on criminal elements and security threats instead of hard-working family members.¶ Bringing these immigrants out of the shadows would strike a blow to unscrupulous employers who mistreat their employees (immigrant and native-born alike) and help ensure worker safety for all.¶ Enabling immigrants to earn legal status and to openly participate in civic life will strengthen our communities and reduce marginalization and exploitation.

#### Economic growth prevents multiple scenarios for nuclear war

Burrows and Harris 9 Mathew J. Burrows counselor in the National Intelligence Council and Jennifer Harris a member of the NIC’s Long Range Analysis Unit “Revisiting the Future: Geopolitical Effects of the Financial Crisis” The Washington Quarterly 32:2 https://csis.org/files/publication/twq09aprilburrowsharris.pdf

Increased Potential for Global Conflict¶ Of course, the report encompasses more than economics and indeed believes the¶ future is likely to be the result of a number of intersecting and interlocking¶ forces. With so many possible permutations of outcomes, each with ample opportunity for unintended consequences, there is a growing sense of insecurity.¶ Even so, history may be more instructive than ever. While we continue to¶ believe that the Great Depression is not likely to be repeated, the lessons to be¶ drawn from that period include the harmful effects on fledgling democracies and¶ multiethnic societies (think Central Europe in 1920s and 1930s) and on¶ the sustainability of multilateral institutions (think League of Nations in the¶ same period). There is no reason to think that this would not be true in the¶ twenty-first as much as in the twentieth century. For that reason, the ways in¶ which the potential for greater conflict could grow would seem to be even more¶ apt in a constantly volatile economic environment as they would be if change¶ would be steadier.¶ In surveying those risks, the report stressed the likelihood that terrorism and¶ nonproliferation will remain priorities even as resource issues move up on the¶ international agenda. Terrorism’s appeal will decline if economic growth¶ continues in the Middle East and youth unemployment is reduced. For those¶ terrorist groups that remain active in 2025, however, the diffusion of¶ technologies and scientific knowledge will place some of the world’s most¶ dangerous capabilities within their reach. Terrorist groups in 2025 will likely be a¶ combination of descendants of long established groupsinheriting¶ organizational structures, command and control processes, and training¶ procedures necessary to conduct sophisticated attacksand newly emergent¶ collections of the angry and disenfranchised that become self-radicalized,¶ particularly in the absence of economic outlets that would become narrower¶ in an economic downturn.¶ The most dangerous casualty of any economically-induced drawdown of U.S.¶ military presence would almost certainly be the Middle East. Although Iran’s¶ acquisition of nuclear weapons is not inevitable, worries about a nuclear-armed¶ Iran could lead states in the region to develop new security arrangements with¶ external powers, acquire additional weapons, and consider pursuing their own¶ nuclear ambitions. It is not clear that the type of stable deterrent relationship¶ that existed between the great powers for most of the Cold War would emerge¶ naturally in the Middle East with a nuclear Iran. Episodes of low intensity¶ conflict and terrorism taking place under a nuclear umbrella could lead to an¶ unintended escalation and broader conflict if clear red lines between those states¶ involved are not well established. The close proximity of potential nuclear rivals¶ combined with underdeveloped surveillance capabilities and mobile¶ dual-capable Iranian missile systems also will produce inherent difficulties in¶ achieving reliable indications and warning of an impending nuclear attack. The¶ lack of strategic depth in neighboring states like Israel, short warning and missile¶ flight times, and uncertainty of Iranian intentions may place more focus on¶ preemption rather than defense, potentially leading to escalating crises.Types of conflict that the world continues¶ to experience, such as over resources, could¶ reemerge, particularly if protectionism grows and¶ there is a resort to neo-mercantilist practices.¶ Perceptions of renewed energy scarcity will drive¶ countries to take actions to assure their future¶ access to energy supplies. In the worst case, this¶ could result in interstate conflicts if government¶ leaders deem assured access to energy resources,¶ for example, to be essential for maintaining domestic stability and the survival of¶ their regime. Even actions short of war, however, will have important geopolitical¶ implications. Maritime security concerns are providing a rationale for naval¶ buildups and modernization efforts, such as China’s and India’s development of¶ blue water naval capabilities. If the fiscal stimulus focus for these countries indeed¶ turns inward, one of the most obvious funding targets may be military. Buildup of¶ regional naval capabilities could lead to increased tensions, rivalries, and¶ counterbalancing moves, but it also will create opportunities for multinational¶ cooperation in protecting critical sea lanes. With water also becoming scarcer in¶ Asia and the Middle East, cooperation to manage changing water resources is¶ likely to be increasingly difficult both within and between states in a more¶ dog-eat-dog world.¶

### 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).

### Leadership

#### SQUO solves for nuclear energy leadership – already seen as the gold standard.

Domenici and Miller, ‘12

(Pete (Senator) and Warren (Co-Chair, Nuclear Initiative; Former DOE Assistant Secretary for Nuclear Energy), “Maintaining U.S. Leadership in Global Nuclear Energy Markets”, July 2012, Bipartisan Policy Center, RSR)

Nuclear power already plays an important role in the U.S. energy supply mix: The nation’s existing fleet of 104 reactors currently accounts for close to 20 percent of overall electricity production. In many parts of the country, nuclear plants help to assure grid stability and have been a major source of cost-effective, low-carbon base-load power for decades. The NRC, the industry’s chief regulatory overseer, is expected to approve extension of the operating licenses for most of these plants to 60 years while striving for improved safety and increasingly efficient operations. At present, the domestic nuclear industry is looking at limited opportunities for expansion in terms of increasing the number of U.S. plants. Currently, four new Generation III+ nuclear reactors have been licensed by the NRC and are under construction in the Southeast. In addition, the Tennessee Valley Authority has restarted construction activities at Watts Bar II. Given this near-term expansion, the United States will continue to be a world leader in the development of advanced reactor technologies, including Generation III+ advanced passive reactors and SMRs. International interest in developing new nuclear-generating capacity, on the other hand, presents potentially substantial business opportunities for the domestic nuclear industry. Commercial nuclear exports generate obvious economic benefits for U.S. firms and for the nation’s overall balance of trade. Importantly, they also help the United States retain a major role in the evolution and maintenance of international nuclear safety and nonproliferation regimes. Other nations not only look to the U.S. industry for operational expertise, they see the NRC as setting the international gold standard for safety and physical security regulation. DOE’s National Nuclear Security Administration, meanwhile, has a great deal of influence over the nonproliferation aspects of international fuel-cycle issues

#### Energy leadership fails – can’t be used for diplomatic purposes.

Dickson, 9

[David, Director, SciDev.Net, 4 June 2009, “ The limits of science diplomacy,” SciDev, <http://www.scidev.net/en/editorials/the-limits-of-science-diplomacy.html>]

Recently, the Obama administration has given this field a new push, in its desire to pursue "soft diplomacy" in regions such as the Middle East. Scientific agreements have been at the forefront of the administration's activities in countries such as Iraq and Pakistan. But — as emerged from a meeting entitled New Frontiers in Science Diplomacy, held in London this week (1–2 June) — using science for diplomatic purposes is not as straightforward as it seems. Some scientific collaboration clearly demonstrates what countries can achieve by working together. For example, a new synchrotron under construction in Jordan is rapidly becoming a symbol of the potential for teamwork in the Middle East. But whether scientific cooperation can become a precursor for political collaboration is less evident. For example, despite hopes that the Middle East synchrotron would help bring peace to the region, several countries have been reluctant to support it until the Palestine problem is resolved. Indeed, one speaker at the London meeting (organised by the UK's Royal Society and the American Association for the Advancement of Science) even suggested that the changes scientific innovations bring inevitably lead to turbulence and upheaval. In such a context, viewing science as a driver for peace may be wishful thinking. Conflicting ethos Perhaps the most contentious area discussed at the meeting was how science diplomacy can frame developed countries' efforts to help build scientific capacity in the developing world. There is little to quarrel with in collaborative efforts that are put forward with a genuine desire for partnership. Indeed, partnership — whether between individuals, institutions or countries — is the new buzzword in the "science for development" community. But true partnership requires transparent relations between partners who are prepared to meet as equals. And that goes against diplomats' implicit role: to promote and defend their own countries' interests. John Beddington, the British government's chief scientific adviser, may have been a bit harsh when he told the meeting that a diplomat is someone who is "sent abroad to lie for his country". But he touched a raw nerve. Worlds apart yet co-dependent The truth is that science and politics make an uneasy alliance. Both need the other. Politicians need science to achieve their goals, whether social, economic or — unfortunately — military; scientists need political support to fund their research. But they also occupy different universes. Politics is, at root, about exercising power by one means or another. Science is — or should be — about pursuing robust knowledge that can be put to useful purposes.

#### Government investment kills energy leadership – creates confusion in the industry.

Spencer and Loris, ‘11

(Jack (Senior Research Fellow, Nuclear Energy Policy at The Heritage Foundation) and Nicolas (Herbert and Joyce Morgan Fellow at The Heritage Foundation), “A Big Future for Small Nuclear Reactors?”, The Heritage Foundation, No. 2514, Backgrounder, 2-2-11, RSR)

Too many policymakers believe that Washington is equipped to guide the nuclear industry to success. So, instead of creating a stable regulatory environment where the market value of different nuclear technologies can determine their success and evolution, they choose to create programs to help industry succeed. Two recent Senate bills from the 111th Congress, the Nuclear Energy Research Initiative Improvement Act (S. 2052) and the Nuclear Power 2021 Act (S. 2812), are cases in point. Government intervention distorts the normal market processes that, if allowed to work, would yield the most efficient, cost-effective, and appropriate nuclear technologies. Instead, the federal government picks winners and losers through programs where bureaucrats and well-connected lobbyists decide which technologies are permitted, and provides capital subsidies that allow investors to ignore the systemic problems that drive risk and costs artificially high. This approach is especially detrimental to SMRs because subsidies to LWRs distort the relative benefit of other reactor designs by artificially lowering the cost and risk of a more mature technology that already dominates the marketplace.

### STEM

#### SQUO solves STEM shortages – multiple efforts underway.

Van Roekel, President of the National Education Association, ‘12

[Dennis, “Leading the STEM Challenge”, 10/3/12, The Huffington Post,

<http://www.huffingtonpost.com/dennis-van-roekel/leading-the-stem-challeng_b_1936512.html>, RSR]

President Obama recently announced a plan to create 100,000 new STEM teacher positions to prepare students for the 2.7 million new jobs expected in those sectors by 2018. The President said that preparing this workforce is "going to make more of a difference in determining how well we do as a country than just about anything else that we do." That's why the National Education Association launched a $500,000 challenge grant that calls on leading business and technology companies to help us increase the number of certified science and math teachers. There's a severe shortage, especially in low-income communities, and that needs to change. We know the things that work -- quality early childhood education, smaller class sizes, greater emphasis on reading, math, science, art and technology, up-to-date textbooks and computers and highly qualified teachers. The National Education Association has placed special emphasis, not just on identifying programs that work, but exploring ways to spread or replicate these programs, so that even greater numbers of our students benefit. From NEA's Priority Schools Campaign that is working to help transform low-performing schools, to our work with the Breakfast in the Classroom program to help ensure that students start the school day nourished and ready to learn -- educators and their union are leading the way with innovations and programs that help to lead the change in our profession and in the lives of our students. But we can't do it alone. We're aggressively reaching out to leaders of business, technology, and philanthropy to urge them to partner with us and match this STEM grant. There's been a lot of talk about jobs going overseas and how the U.S. is losing its competitive edge -- now is the time to stop talking and take action.

#### Can’t solve deterrence – their author cites multiple alt causes.

Spring and Bendikova, ‘12

[Baker (F. M. Kirby Research Fellow in National Security Policy – Heritage Foundation) and Michaela (Research Assistant for Missile Defense and Foreign Policy in the Douglas and Sarah Allison Center for Foreign Policy Studies – Heritage Foundation), “Time to Modernize and Revitalize the Nuclear Triad", Heritage Backgrounder, 1-27,

<http://thf_media.s3.amazonaws.com/2012/pdf/bg2646.pdf>]

To maintain and protect the U.S. ability to deter attacks on its homeland, forward-deployed troops, or allies, the United States needs to: • Preserve the triad. Eliminating any leg of the triad would put the other two under unacceptable pressure and increase attrition rates and operational and maintenance costs. The three legs of the triad also hedge against technological failures in the other two legs. The United States deploys only one type of ICBM and SLBM and a technical failure would likely take a large portion of the U.S. deterrent offline for an extended period. For example, on October 24, 2011, the U.S. Air Force lost communication with a squadron of 50 nuclear-armed Minuteman ICBMs at Warren Air Force Base in Wyoming. In the past, this type of disruption was rare and limited to individual missiles. However, the broad scale of this incident made it one of the most serious and sizable ruptures in nuclear command and control in history. 46 In addition, the United States would be left vulnerable to strategic and technological surprises as other nuclear powers modernize their systems. • Develop new warheads in concurrence with new delivery systems. If the directors of the National Laboratories determine that new warheads specifically mated to new delivery vehicles would bring significant material and tactical benefits to the United States, the National Laboratories should work closely with the military to develop new warheads that perfectly mate with the new delivery systems. This would hedge against technological surprises stemming from the rapidly expanding modernization programs of other countries. New warheads would also allow new delivery vehicles to be designed outside the limits of the increasingly obsolescent U.S. stockpile. • Resume nuclear weapons testing if necessary. The United States should not hesitate to resume nuclear weapons testing if the directors of the National Laboratories determine the need to do so. Because of the public’s negative perception of nuclear testing, any resumption of nuclear weapon testing should be accompanied by a public educational campaign to explain the importance of testing to U.S. national security. • Modernize all legs of the triad. More than 30 countries around the world rely on the U.S. nuclear weapons umbrella. Therefore, it is essen- tial for the U.S. to maintain a credible nuclear triad. Modernization programs of other countries, especially China and Russia, could put the credibility of the U.S. deterrent in question and are rendering the U.S. vulnerable to a first-strike attack. • Increase investments in nuclear infrastructure. The United States needs to provide for its nuclear weapons infrastructure. Some of the National Laboratories’ buildings and equipment are decades old and require significant investments. These investments could also attract new engineers and provide the Laboratories with the means to better address the challenges of maintaining the stockpile’s safety, security, and reliability. • Increase investments in the U.S. nuclear technology base. The United States and its allies would benefit tremendously from the increased investments in the science and technology base underpinning the nuclear weapons complex. It is critical to build up scientific knowledge amid the challenges posed by an aging workforce and the ability of the sector to attract new engineers. • Certify the new bomber for nuclear missions at initial operational capability. The Air Force should certify the new bomber for nuclear missions at the beginning of its operational life cycle. Certifying the bomber when it becomes operational would only marginally increase development costs and substantially enhance the capability of U.S. deterrence

#### Deterrence empirically fails.

Kober, research fellow, foreign policy studies – Cato, ‘10

[Stanley, “The deterrence illusion,” 6-13-10, <http://www.guardian.co.uk/commentisfree/cifamerica/2010/jun/10/deterrence-war-peace>]

The world at the beginning of the 21st century bears an eerie – and disquieting – resemblance to Europe at the beginning of the last century. That was also an era of globalisation. New technologies for transportation and communication were transforming the world. Europeans had lived so long in peace that war seemed irrational. And they were right, up to a point. The first world war was the product of a mode of rational thinking that went badly off course. The peace of Europe was based on security assurances. Germany was the protector of Austria-Hungary, and Russia was the protector of Serbia. The prospect of escalation was supposed to prevent war, and it did– until, finally, it didn't. The Russians, who should have been deterred – they had suffered a terrible defeat at the hands of Japan just a few years before – decided they had to come to the support of their fellow Slavs. As countries honoured their commitments, a system that was designed to prevent war instead widened it. We have also been living in an age of globalisation, especially since the end of the cold war, but it too is increasingly being challenged. And just like the situation at the beginning of the last century, deterrence is not working. Much is made, for example, of the North Atlantic Treaty Organisation (Nato) invoking Article V – the famous "three musketeers" pledge that an attack on one member is to be considered as an attack on all – following the terrorist attacks of September 11. But the United States is the most powerful member of Nato by far. Indeed, in 2001, it was widely considered to be a hegemon, a hyperpower. Other countries wanted to be in Nato because they felt an American guarantee would provide security. And yet it was the US that was attacked. This failure of deterrence has not received the attention it deserves. It is, after all, not unique. The North Vietnamese were not deterred by the American guarantee to South Vietnam. Similarly, Hezbollah was not deterred in Lebanon in the 1980s, and American forces were assaulted in Somalia. What has been going wrong? The successful deterrence of the superpowers during the cold war led to the belief that if such powerful countries could be deterred, then lesser powers should fall into line when confronted with an overwhelmingly powerful adversary. It is plausible, but it may be too rational. For all their ideological differences, the US and the Soviet Union observed red lines during the cold war. There were crises – Berlin, Cuba, to name a couple – but these did not touch on emotional issues or vital interests, so that compromise and retreat were possible. Indeed, what we may have missed in the west is the importance of retreat in Soviet ideology. "Victory is impossible unless [the revolutionary parties] have learned both how to attack and how to retreat properly," Lenin wrote in "Left-Wing" Communism: An Infantile Disorder. When the Soviets retreated, the US took the credit. Deterrence worked. But what if retreat was part of the plan all along? What if, in other words, the Soviet Union was the exception rather than the rule? That question is more urgent because, in the post-cold war world, the US has expanded its security guarantees, even as its enemies show they are not impressed. The Iraqi insurgents were not intimidated by President Bush's challenge to "bring 'em on". The Taliban have made an extraordinary comeback from oblivion and show no respect for American power. North Korea is demonstrating increasing belligerence. And yet the US keeps emphasising security through alliances. "We believe that there are certain commitments, as we saw in a bipartisan basis to Nato, that need to be embedded in the DNA of American foreign policy," secretary of state Hillary Clinton affirmed in introducing the new National Security Strategy. But that was the reason the US was in Vietnam. It had a bipartisan commitment to South Vietnam under the Southeast Asia Treaty Organisation, reaffirmed through the Tonkin Gulf Resolution, which passed Congress with only two dissenting votes. It didn't work, and found its commitments were not embedded in its DNA. Americans turned against the war, Secretary Clinton among them. The great powers could not guarantee peace in Europe a century ago, and the US could not guarantee it in Asia a half-century ago.

#### No negative impact to weapons testing and it’s key to safety and the deterrent.

Bolton 7 (John, “Surrender is Not an Option” 9/20/2007)

Comprehensive Test Ban Treaty (CTBT). The CTBT, which sought to ban all nuclear weapons testing, was a hangover signed in the Clinton administration; Bush said during Campaign 2000 that he had no intention of submitting it to the Senate for ratification. Nonetheless, State Department arms controllers and the wider congregation of arms control True Believers worked diligently to make the new leadership succumb to their relentless efforts, as so many previous “conservative” administrations had done, and accept the “inevitability” that the CTBT would enter into force. After all, the Europeans favored it, including Britain and France, Europe’s two nuclear weapons states. Why should we have a problem with it, notwithstanding that Republican efforts in the Senate had led to a majority vote actually rejecting the CTBT on October 13, 1999, the first major such action since the defeat of the Treaty of Versailles on March 20, 1920. In this case, the administration outlasted the bureaucracy, and the CTBT candle-lighters resolved simply to wait until the barbarians departed, which they had hoped would be after the 2004 elections. Now, they can only await the CTBT’s resurrection, which they hope to see in 2009. May they wait in vain.¶ The real issue was not what to do with the CTBT, but whether and when we would take the steps necessary to resume nuclear testing, both to ensure the continuing safety and reliability of our existing nuclear stockpile and to test weapons designs that could address problems such as the hard or deeply buried targets favored by terrorist groups and rogue states. Any mention of resumed testing, breaking the moratorium Bush 41 had instituted, was heresy to the True Believers, but the inconvenient truth was that the long failure to test could leave the United States vulnerable in the future. An unsafe nuclear stockpile could cause disaster if a weapon detonated accidentally, while unreliable weapons could reduce or even eliminate the deterrent effect- the “nuclear umbrella”- that had protected us (and our allies) for decades during the Cold War. As one nuclear scientist put it to me, our warhead stockpile was like a huge garage filled with cars: We didn’t want any of the to start unless we turned on the ignition, but if we did, we expected the car to start the first time. When I left the administration, the future of testing was unresolved, but a decision will not wait much longer. By derailing the CTBT, Bush will leave his successor free to make that decision, and not bound by a treaty that constrains the United States, unlike our principal opponents and rogue states that will ratify the CTBT and then ignore it.

### Fusion

#### No fusion – not scientifically feasible.

Brumfiel, ‘12

[Geoff, Scientific American, June, Fusion's Missing Pieces, EBSCO]

Scientists such as Lee have been seduced by fusion for half a century. Many before him have promised its impending arrival. Although some of those researchers were charlatans, the vast majority of them turned out to be plain wrong. Fusion is tough, and nature breaks promises. Here is the core challenge: because hydrogen ions repel one another, scientists must slam them together to make them fuse. ITER's strategy is to heat the hydrogen inside a magnetic cage. The particular type of magnetic cage it employs is called a tokamak -- a metal doughnut circled by loops of coil that generate magnetic fields. These magnetic cuffs squeeze a charged plasma of hydrogen ions as it warms to hundreds of millions of degrees -- temperatures no solid material can withstand. In the 1970s tokamaks looked so promising that some researchers predicted they could build fusion electricity plants by the mid-1990s. The only challenge was scaling research reactors up to sufficient size -- in general, the bigger the tokamak, the hotter the plasma can get, and the more efficient fusion becomes. Then problems arose. Plasma conducts electricity and so can suffer from self-generated currents that make it buck and writhe. Violent turbulence snaps the plasma out of its cage, firing it toward the machine's wall. As the temperature rises, the tokamak grows to give the plasma space, and the magnetic fields need to be stronger to hold it. Extra room and stronger magnetic fields require higher electric current in the doughnut's copper coils. And higher current requires more power. Put simply: the larger and more powerful a machine becomes, the more energy it consumes trying to hold everything together. This feedback meant that conventional tokamaks would never produce more energy than they consumed. Lee and others knew of only one solution: superconductors -- special materials that, at very low temperatures, can carry extremely high current with no resistance. If a tokamak's magnets were superconducting, they could be pumped up with current and left to run indefinitely. It would solve the energy problem but would not be cheap. Superconductors are exotic, expensive materials. And to work, they need to be constantly cooled with liquid helium to just four kelvins above absolute zero.

#### Their Burnett evidence never says that funding would overcome scientific barriers in the SQUO or that it makes it commercial.

#### Err neg – fusion takes AT LEAST 50 years.

Rhodes, Physical Chemistry Professor at Sussex University, ‘12

[Chris, “Progress made in the Different Fields of Nuclear Fusion, 6-10-12

oilprice.com/Alternative-Energy/Nuclear-Power/The-Progress-made-in-the-Different-Fields-of-Nuclear-Fusion.html]

When I was about 10, I recall hearing that nuclear fusion power would become a reality "in about thirty years". The estimate has increased steadily since then, and now, forty odd years on, we hear that fusion power will come on-stream "in about fifty years". So, what is the real likelihood of fusion-based power stations coming to our aid in averting the imminent energy crisis? Getting two nuclei to fuse is not easy, since both carry a positive charge and hence their natural propensity is to repel one another. Therefore, a lot of energy is required to force them together so that they can fuse. To achieve this, suitable conditions of extremely high temperature, comparable to those found in stars, must be met. A specific temperature must be reached in order for particular nuclei to fuse with one another. This is termed the "critical ignition temperature", and is around 400 million degrees centigrade for two deuterium nuclei to fuse, while a more modest 100 million degrees is sufficient for a deuterium nucleus to fuse with a tritium nucleus. For this reason, it is deuterium-tritium fusion that is most sought after, since it should be most easily achieved and sustained. One disadvantage of tritium is that it is radioactive and decays with a half-life of about 12 years, and consequently, it exists naturally in only negligible amounts. However, tritium may be "bred" from lithium using neutrons produced in an initial deuterium-tritium fusion. Ideally, the process would become self-sustaining, with lithium fuel being burned via conversion to tritium, which then fuses with deuterium, releasing more neutrons. While not unlimited, there are sufficient known resources of lithium to fire a global fusion programme for about a thousand years, mindful that there are many other uses for lithium, ranging for various types of battery to medication for schizophrenics. The supply would be effectively limitless if lithium could be extracted from the oceans. In a working scenario, some of the energy produced by fusion would be required to maintain the high temperature of the fuel such that the fusion process becomes continuous. At the temperature of around 100 - 300 million degrees, the deuterium/lithium/tritium mixture will exist in the form of a plasma, in which the nuclei are naked (having lost their initial atomic electron clouds) and are hence exposed to fuse with one another. The main difficulty which bedevils maintaining a working fusion reactor which might be used to fire a power station is containing the plasma, a process usually referred to as "confinement" and the process overall as “magnetic confinement fusion” (MCF). Essentially, the plasma is confined in a magnetic bottle, since its component charged nuclei and electrons tend to follow the field of magnetic force, which can be so arranged that the lines of force occupy a prescribed region and are thus centralised to a particular volume. However, the plasma is a "complex" system that readily becomes unstable and leaks away. Unlike a star, the plasma is highly rarefied (a low pressure gas), so that the proton-proton cycle that powers the sun could not be thus achieved on earth, as it is only the intensely high density of nuclei in the sun's core that allows the process to occur sustainably, and that the plasma is contained within its own gravitational mass, and isolated within the cold vacuum of space. In June 2005, the EU, France, Japan, South Korea, China and the U.S. agreed to spend $12 billion to build an experimental fusion apparatus (called ITER) by 2014. It is planned that ITER will function as a research instrument for the following 20 years, and the knowledge gained will provide the basis for building a more advanced research machine. After another 30 years, if all goes well, the first commercial fusion powered electricity might come on-stream. The Joint European Torus (JET) I attended a fascinating event recently - a Cafe' Scientifique meeting held in the town of Reading in South East England. I have also performed in this arena, talking about "What Happens When the Oil Runs Out?", which remains a pertinent question. This time it was the turn of Dr Chris Warrick from the Culham Centre for Fusion Energy based near Abingdon in Oxfordshire, which hosts both the MAST (Mega Amp Spherical Tokamak) and the better known JET (Joint European Torus) experiments. In the audience was a veteran engineer/physicist who had worked on the pioneering ZETA4 experiment in the late 1950s, from which neutrons were detected leading to what proved later to be false claims that fusion had occurred, their true source being different versions of the same instability processes that had beset earlier machines. Nonetheless, his comment was salient: "In the late 50s, we were told that fusion power was 20 years away and now, 50-odd years later it is maybe 60 years away." Indeed, JET has yet to produce a positive ratio of output power/input energy, and instability of the plasma is still a problem. Dr Warrick explained that while much of the plasma physics is now sorted-out, minor aberrations in the magnetic field allow some of the plasma to leak out, and if it touches the far colder walls of the confinement chamber, it simply "dies". In JET it is fusion of nuclei of the two hydrogen isotopes, deuterium and tritium that is being undertaken, a process that as noted earlier, requires a "temperature" of 100 million degrees. I say "temperature" because the plasma is a rarefied (very low pressure) gas, and hence the collisions between particles are not sufficiently rapid that the term means the same distribution of energy as occurs under conditions of thermal equilibrium. It is much the same as the temperatures that may be quoted for molecules in the atmospheric region known as the thermosphere which lies some 80 kilometres above the surface of the Earth. Here too, the atmosphere is highly rarefied and thus derived temperatures refer to translational motion of molecules and are more usefully expressed as velocities. However expressed, at 100 million degrees centigrade, the nuclei of tritium and deuterium have sufficient translational velocity (have enough energy) that they can overcome the mutual repulsion arising from their positive charges and come close enough that they are drawn together by attractive nuclear forces and fuse, releasing vast amounts of energy in the process. JET is not a small device, at 18 metres high, but bigger machines will be necessary before the technology is likely to give out more energy than it consumes. Despite the considerable volume of the chamber, it contains perhaps only one hundredth of a gram of gas, hence its very low pressure. There is another matter and that is how long the plasma and hence energy emission can be sustained. Presently it is fractions of a second but a serious "power station" would need to run for some hours. There is also the problem of getting useful energy from the plasma to convert into electricity even if the aforementioned and considerable problems can be overcome and a sustainable, large-scale plasma maintained. The plan is to surround the chamber with a "blanket" of lithium with pipes running through it and some heat-exchanger fluid passing through them. The heated fluid would then pass on its heat to water and drive a steam-turbine, in the time-honoured fashion used for fossil fuel fired and nuclear power plants. Now my understanding is that this would not be lithium metal but some oxide material. The heat would be delivered in the form of very high energy neutrons that would be slowed-down as they encounter lithium nuclei on passing through the blanket. In principle this is a very neat trick, since absorption of a neutron by a lithium nucleus converts it to tritium, which could be fed back into the plasma as a fuel. Unlike deuterium, tritium does not exist is nature, being radioactive with a half-life of about 12 years. However produced, either separately or in the blanket, lithium is the ultimate fuel source, not tritium per se. Deuterium does exist in nature but only to the extent of one part in about two thousand of ordinary hydrogen (protium) and hence the energy costs of its separation are not inconsiderable. The neutron flux produced by the plasma is very high, and to enhance the overall breeding efficiency of lithium to tritium the reactor would be surrounded with a “lithium” blanket about three feet thick. The intense neutron flux will render the material used to construct the reactor highly radioactive, to the extent that it would not be feasible for operators to enter its vicinity for routine maintenance. The radioactive material will need to be disposed of similarly to the requirements for nuclear waste generated by nuclear fission, and hence fusion is not as "clean" as is often claimed. Exposure to radiation of many potential materials necessary to make the reactor, blanket, and other components such as the heat-exchanger pipes would render them brittle, and so compromise their structural integrity. There is also the possibility that the lithium blanket around the reactor might be replaced by uranium, so enabling the option of breeding plutonium for use in nuclear weapons. Providing a fairly intense magnetic field to confine the plasma (maybe Tesla - similar to that in a hospital MRI scanner) needs power (dc not ac as switching the polarity of the field would cause the plasma to collapse) and large power-supply units containing a lot of metals including rare earths which are mined and processed using fossil fuels. The issue of rare earths is troublesome already, and whether enough of them can be recovered to meet existing planned wind and electric car projects is debatable, let alone that additional pressure should be placed upon an already fragile resource to build a first generation of fusion power stations. World supplies of lithium are also already stressed, and hence getting enough of it not only to make blankets for fusion reactors and tritium production but also for the millions-scale fleet of electric vehicles needed to divert our transportation energy demand away from oil is probably a bridge too far, unless we try getting it from seawater, which takes far more energy than mining lithium minerals. The engineering requirements too will be formidable, however, most likely forcing the need to confront problems as yet unknown, and even according to the most favourable predictions of the experts, fusion power is still 60 years away, if it will arrive at all. Given that the energy crisis will hit hard long before then, I suggest we look to more immediate solutions, mainly in terms of energy efficiency, for which there is ample scope. To quote again the ZETA veteran, "I wonder if maybe man is not intended to have nuclear fusion," and all in all, other than from solar energy I wonder if he is right. At any rate, garnering real electrical power from fusion is so far distant as to have no impact on the more immediately pressing fossil fuels crisis, particularly for oil and natural gas. Fusion Power is a long-range "holy grail" and part of the illusion that humankind can continue in perpetuity to use energy on the scale that it presently does. Efficiency and conservation are the only real means to attenuate the impending crisis in energy and resources.

#### 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.

#### No Iran war escalation - we would win

Kroenig 12(Matthew, professor of Government at Georgetown University and a Stanton Nuclear Security Fellow at the Council on Foreign Relations, Foreign Affairs, Feb, http://www.foreignaffairs.com/articles/136917/matthew-kroenig/time-to-attack-iran)

Even if Tehran did cross Washington's redlines, the United States could still manage the confrontation. At the outset of any such violation, it could target the Iranian weapons that it finds most threatening to prevent Tehran from deploying them. To de-escalate the situation quickly and prevent a wider regional war, the United States could also secure the agreement of its allies to avoid responding to an Iranian attack. This would keep other armies, particularly the Israel Defense Forces, out of the fray. Israel should prove willing to accept such an arrangement in exchange for a U.S. promise to eliminate the Iranian nuclear threat. Indeed, it struck a similar agreement with the United States during the Gulf War, when it refrained from responding to the launching of Scud missiles by Saddam Hussein.

#### 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 § Marked 17:01 § 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.

## 2NC

### Politics

#### 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.

#### 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.

#### Will pass – election provides opportunity for deal

CSM 12/28 (Immigration reform: Is 'amnesty' a possibility now?, http://www.csmonitor.com/USA/Politics/2012/1228/Immigration-reform-Is-amnesty-a-possibility-now)

The momentum of President Obama's resounding victory in November's election – with a big push from Latinos and other minority groups – has catapulted immigration policy to the top of Washington's 2013 agenda, making reform not only possible but also likely.¶.¶ The shift in the political conversation has been so dramatic that even a pathway to citizenship for some of the estimated 12 million undocumented immigrants in the United States – long rejected out of hand by most Republicans and some Democrats – could be part of the deal.¶ The task is momentous. It involves weighing the wishes of industries from agriculture to high-tech, as well as the sensitivities of opening the door to immigrant workers at a time when unemployment remains high.¶ Recommended: Could you pass a US citizenship test? ¶ The past only reinforces the potential difficulties ahead. In 1986, Republicans felt betrayed when Democrats stripped the enforcement provisions from a bill that offered citizenship to some 3 million illegal immigrants. By 2005, the issue had become so politically toxic to conservatives that they blocked President George W. Bush's push for a new round of immigration reform.¶ Yet with Election 2012 highlighting the electoral consequences of America's changing demographics, the next year appears to be ripe for compromise. How reforms might take shape could be a major point of contention between the parties, but lawmakers on both sides suddenly see an opportunity for what could be their most expansive achievement of 2013.

#### Will pass – Republicans want a pathway to citizenship

CSM 12/28 (Immigration reform: Is 'amnesty' a possibility now?, http://www.csmonitor.com/USA/Politics/2012/1228/Immigration-reform-Is-amnesty-a-possibility-now)

House Speaker John Boehner (R) of Ohio signaled a shift when he told ABC News a day after the election that "a comprehensive approach [to immigration] is long overdue, and I'm confident that the president, myself, others, can find the common ground to take care of this issue once and for all.” That's a departure from previous immigration-reform attempts, in which the GOP brass wasn't on board.¶ Perhaps just as important, though, is that several leading lawmakers with near-pristine conservative credentials are also involved.¶ Two tea party superstars – Senators Rubio and Lee, both of whom knocked out establishment Republican figures to win their seats – are going to be key players in any reform.¶ In the House, the involvement of House Judiciary chairman Rep. Bob Goodlatte (R) of Virginia and Representative Labrador of Idaho can provide cover to conservative lawmakers from the party's right flank.¶ "The fact that you're going to have strong conservative voices helping lead this debate is going to be critical to solving it instead of using it as a political wedge," says Rep. Steve Scalise (R) of Louisiana, incoming chairman of the Republican Study Committee, the largest and most conservative caucus in the House.¶ It's notable that both Labrador and Rubio believe in, one way or another, a path to citizenship for some illegal immigrants, even while they leave open just who can get on that path.

#### Immigration is top of the agenda

Washington Times 12/30 (Obama says immigration reform will be priority, http://www.washingtontimes.com/news/2012/dec/30/obama-names-immigration-top-second-term-priority/#ixzz2GsZn7gvP

President Obama says immigration is his major second-term priority, on par with his push for health care in his first term, according to an interview aired Sunday that continues to boost the issue to the top of the political conversation.¶ “Fixing our broken immigration system is a top priority. I will introduce legislation in the first year to get that done,” Mr. Obama told NBC’s “Meet the Press” host David Gregory, who had asked the president what the second-term equivalent would be to his all-encompassing push for health care during his first term.

#### Immigration is the top priority, in January - the coming fiscal battles won’t overwhelm

Huffington Post 1/2 (Obama's Immigration Reform Push To Begin This Month, http://www.huffingtonpost.com/2013/01/02/obama-immigration-reform\_n\_2398507.html)

WASHINGTON -- Despite a bruising fiscal cliff battle that managed to set the stage for an even more heated showdown that will likely take place in a matter of months, President Barack Obama is planning to move full steam ahead with the rest of his domestic policy agenda.¶ An Obama administration official said the president plans to push for immigration reform this January. The official, who spoke about legislative plans only on condition of anonymity, said that coming standoffs over deficit reduction are unlikely to drain momentum from other priorities. The White House plans to push forward quickly, not just on immigration reform but gun control laws as well.

#### Obama is tackling immigration reform immediately

Estes 1/2 (Obama's Push for Immigration Reform Starts Now, http://www.theatlanticwire.com/politics/2013/01/obamas-push-immigration-reform-starts-now/60525/)

Everybody knew that Obama was going to tackle immigration reform in his second term. We just didn't know how soon. Well, the word is out, and it's good news for anybody eager for lawmakers to tackle an issue that's troubled the country for years. Obama will take on immigration reform this month. A fresh report from The Huffington Post's Elise Foley and Sam Stein quotes anonymous administration officials and Democratic aides in explaining that the president is going to move fast on immigration reform, as well as gun control, and advocates couldn't be happier. ¶ None of this is a tremendous surprise, though the expedited timeline is sort of curious. Obama's been talking about sweeping immigration since he took office and, at least until 2009, has left many guessing if and when that's going to happen. He made progress last year when he kept 800,000 young people who had been brought to the United States illegally as children from being deported, making a DREAM Act-like policy initiative as the DREAM Act itself floundered in Congress. Immigration remained an issue through the election, and almost as soon as Obama won his second term, whispers of a renewed push for immigration reform started, though the White House vowed to deal with the fiscal cliff first. Obama then reiterated his commitment to tackle immigration soon on his Meet the Press appearance last weekend.¶ With a fiscal cliff deal (sort of) sealed, it would appear it's immigration time, and details about how the president will handle the challenge are trickling out. Stein and Foley say that California congresswoman Zoe Lofgren will lead the Democratic effort in the House and pushes back at the idea that House Speaker John Boehner will be able to stonewall the effort. "In the end, immigration reform is going to depend very much on whether Speaker Boehner wants to do it or not," she said. Democrats will inevitably have to navigate more than Boehner's will, but some say that the challenge of the fiscal cliff has Capitol Hill ready for some easier negotiations. Or as one pro-immigration reform executive told HuffPost, "The chance to legislate through regular order on immigration reform might have leaders in both parties working together and singing 'Kumbaya.'"

#### Plan perceived as a waste of money

Brumfiel, ‘12

[Geoff, Scientific American, June, Fusion's Missing Pieces, EBSCO]

Supporters argue that ITER is the only hope, in the long term, of meeting the world's unquenchable demand for power. But even they have been forced to recalibrate their Utopian expectations. The project now seems to be propelled by institutional inertia -- it is easier for individual governments to stay the course rather than be the lone pariah who pulls out early. Critics, meanwhile, have more ammunition with each delay and cost overrun. ITER, they say, is a colossal waste of money at a time when funding is desperately needed in other areas of energy research. Both sides agree: when the project is finally completed, it had better work.

#### Empirics prove.

Nesbit, Director of public affairs for two prominent federal science agencies, ‘12

[Jeff, 8/8, “New Burst of Energy Could Bring Cold Fusion to Front Burner,”

http://www.usnews.com/news/blogs/at-the-edge/2012/08/08/new-burst-of-energy-could-bring-cold-fusion-to-front-burner]

None of this says that cold fusion is real. None of this means that senior executives at big companies like Boeing or National Instruments or senior officials at federal agencies or departments like NASA, the U.S. Navy, or DOE **are willing to commit publicly to spending meaningful taxpayer dollars on** cold **fusion research**. In fact, the Navy reportedly shut down its LENR research in California earlier this year after a news report on its efforts led to **unwanted publicity.**

#### Obama will get blamed for agency action.

Wallison 3 (Peter Wallison, Resident Fellow @ American Enterprise Institute, 1/12/’3 (Washington Post, l/n)

Control over independent regulatory agencies has traditionally resided with Congress, which created all of them. The recent controversy over the Securities and Exchange Commission suggests, however, that now Congress, the White House, and the public all take for granted that the independent agencies are the president's responsibility. The political frenzy surrounding Enron's collapse and other corporate scandals may have produced--or at least exposed--a significant shift in the relationship between Congress and the White House. The efforts of congressional Democrats to pin some of the blame for the scandals on the president and the head of the Securities and Exchange Commission--and President Bush's willingness to act as though the SEC is his responsibility--may signal the end of more than a century of experimentation with independent regulatory agencies as a so-called "fourth branch" of government. History of Independent Agencies Independent agencies such as the SEC have always been regarded as "arms of Congress," outside the control of the executive branch. The president appointed the members and the chairman, but the terms for these officials overlapped presidential administrations, allowing--and encouraging--them to act without policy direction from the White House. The political fallout from the recent scandals has turned all this on its head. These independent agencies are creatures of Congress, not the Constitution. The first, the Interstate Commerce Commission (ICC), was established in 1887 to control the powerful railroad industry. Later, especially during the Progressive and New Deal eras, a number of other agencies were created, several of which still exist--including the SEC, the Federal Trade Commission, and the Federal Communications Commission. Several others, such as the Federal Power Commission and the Civil Aeronautics Board, went out of business a quarter-century ago. The ICC closed its doors in 1995. There was no clear reason, or constitutional rationale, why the duties of these bodies could not have been performed by regular executive branch departments. Presidents have expressed their unhappiness with this diminution of their authority, and some have tried to influence agency policies through the appointments process, but they have not confronted Congress on the issue. And Congress--always jealous of its prerogatives in the face of the executive branch's growing power--has never conceded that the independent regulatory agencies could take policy direction from the president. Then, in 1971, the status quo was called into question. The President's Advisory Council on Executive Organization--known as the Ash Council after its chairman, Roy L. Ash of Litton Industries--recommended that almost all of the functions of these bodies be transferred to single administrators, appointed by the president and accountable to him. The Ash Council's rationale for this reform was simple: If the president's policy control did not extend to these independent agencies, then his responsibility for them could not be clearly fixed and voters could not hold him accountable. Moreover, the president's policies, even if adopted by Congress, could be frustrated through contrary actions by the independent agencies. The Ash Council's proposal, like many reform ideas, went nowhere. There was no support in Congress for enhancing the president's power, and the Nixon administration--beset first by economic problems and then by the Watergate scandal--had no stomach for challenging Congress. (The Ash Council's report did lead, however, to the creation of the Environmental Protection Agency, headed by an administrator who answers to the president.) During the Reagan administration, however, the executive branch became more assertive. The Justice Department took the Constitution's separation of powers seriously, which by implication challenged the very legitimacy of the independent regulatory agencies. Nevertheless, because of congressional sensitivities and the continuing sense that these bodies were quasi-judicial in nature, White House officials were warned that all contacts with the independent regulatory agencies had to be approved in advance--or actually carried out--by the White House counsel's office. The Reagan administration never seriously considered taking on Congress through a legislative proposal that would bring these independent agencies within the constitutionally established structure. The Presidential Role All this history appears to have been forgotten in the politics of 2002. The Democrats, hoping to make an election issue out of the SEC's "failure" to stop "corporate corruption," proceeded to blame a Republican president for events that were solely within the authority of the SEC. There was no indication that departments or agencies unquestionably controlled by the president had any role for policing either the securities industry or the companies under scrutiny. So if President Bush was somehow responsible for what happened at Enron, WorldCom, Tyco, and the rest, it had to be as a consequence of some presidential authority over the SEC. To be sure, the president had appointed the chairman and the other members of the SEC, but that in itself would not make him blameworthy unless one assumed that he was also directly responsible for how the SEC acted before, and after, the scandals erupted. That is the nub of the important but largely unnoticed change that has occurred: the unchallenged assumption on the part of all parties--in Congress, in the media, among the public, and even in the White House itself--that the president was fully accountable for an agency that has always been viewed as independent. The significance of this change in the grand government scheme of things can hardly be overstated. Without legislation or judicial decision, the president has suddenly become electorally responsible for the decisions of bodies that were considered to be within the special purview of Congress, susceptible only to congressional policy direction. Of course, this functional revolution did not give the president any new powers with respect to the independent regulatory agencies. But the die is now cast. The way the American people look at the president's responsibilities apparently is changing, and that will affect the attitude of Congress. If the American people believe that the president should be responsible for the actions of the SEC, it will be difficult to convince them otherwise. Significantly, since Harvey Pitt's resignation as SEC chairman in November, the media have routinely referred to the president's choice to head the SEC, investment banker William H. Donaldson, as a member of the Bush "economic team."

#### Winners win not true for Obama on energy policy.

Eisler, Research Fellow at the Center for Contemporary History and Policy at the Chemical Heritage Foundation, ‘12

[Matthew, “Science, Silver Buckshot, and ‘All of The Above’” Science Progress, April 2, http://scienceprogress.org/2012/04/science-silver-buckshot-and-%E2%80%9Call-of-the-above%E2%80%9D/]

Conservatives take President Obama’s rhetoric at face value. Progressives see the president as disingenuous. No doubt White House planners regard delaying the trans-border section of the Keystone XL pipeline and approving the Gulf of Mexico portion as a stroke of savvy realpolitik, but one has to wonder whether Democratic-leaning voters really are as gullible as this scheme implies. And as for the president’s claims that gasoline prices are determined by forces beyond the government’s control (speculation and unrest in the Middle East), it is probably not beyond the capacity of even the mildly educated to understand that the administration has shown little appetite to reregulate Wall Street and has done its part to inflate the fear premium through confrontational policies in the Persian Gulf. Committed both to alternative energy (but not in a rational, comprehensive way) and cheap fossil fuels (but not in ways benefiting American motorists in an election year), President Obama has accrued no political capital from his energy policy from either the left or the right by the end of his first term. The president long ago lost the legislative capacity for bold action in practically every field, including energy, but because the GOP’s slate of presidential candidates is so extraordinarily weak in 2012, he may not need it to get re-elected. At least, that is the conventional wisdom in Democratic circles. Should President Obama win a second term, Congress is likely to be even more hostile than in his first term, as in the Clinton years. And as in the Clinton years, that will probably mean four more years of inaction and increased resort to cant.

#### Victories build opposition- wins create resentment for Obama

Purdum 10 (Todd, Award winning journalist for the NYT,Vanity Fair Columnist, December 20, "Obama Is Suffering Because of His Achievements, Not Despite Them", http://www.vanityfair.com/online/daily/2010/12/obama-is-suffering-because-of-his-achievements-not-despite-them.html)jn

With this weekend’s decisive Senate repeal of the military’s “Don’t Ask, Don’t Tell” policy for gay service members, can anyone seriously doubt Barack Obama’s patient willingness to play the long game? Or his remarkable success in doing so? In less than two years in office—often against the odds and the smart money’s predictions at any given moment—Obama has managed to achieve a landmark overhaul of the nation’s health insurance system; the most sweeping change in the financial regulatory system since the Great Depression; the stabilization of the domestic auto industry; and the repeal of a once well-intended policy that even the military itself had come to see as unnecessary and unfair. So why isn’t his political standing higher? Precisely because of the raft of legislative victories he’s achieved. Obama has pushed through large and complicated new government initiatives at a time of record-low public trust in government (and in institutions of any sort, for that matter), and he has suffered not because he hasn’t “done” anything but because he’s done so much—way, way too much in the eyes of his most conservative critics. With each victory, Obama’s opponents grow more frustrated, filling the airwaves and what passes for political discourse with fulminations about some supposed sin or another. Is it any wonder the guy is bleeding a bit? For his part, Obama resists the pugilistic impulse. To him, the merit of all these programs has been self-evident, and he has been the first to acknowledge that he has not always done all he could to explain them, sensibly and simply, to the American public.

#### Obama is cutting nuclear incentives.

Bendery, ‘12

[Jennifer, “Obama's Budget Nixes New Money For Program That Funded Solyndra," Huffington Post, 2/14,

www.huffingtonpost.com/2012/02/14/obama-budget-solyndra-program\_n\_1276605.html]

WASHINGTON -- In a quiet shift from the past two years, President Barack Obama's 2013 budget includes no new money for the Department of Energy loan guarantee program, the same program that House Republicans have scrutinized for losing more than $500 million in taxpayer dollars to the now-defunct solar power company, Solyndra. Obama has regularly included huge increases to the program's loan guarantee authority in his budget, though Congress has not approved his proposals. He provided a $36 billion increase for nuclear reactors in his 2011 budget, and again in his 2012 budget. He also included $200 million in credit subsidies for renewable and energy efficiency projects in his 2012 budget. This year, he provided nothing.Meg Reilly, a spokeswoman for the Office of Management and Budget, said in an email that Obama opted not to put new money toward the loan guarantee program this time because the administration is waiting on the results of an evaluation of the Energy Department's loan portfolio. Reilly also said the program still has "a significant amount of remaining resources" from prior years and that the focus will be on putting those funds to use. There's about $10 billion in its reserves. The Energy Department "continues to conduct due diligence and is in active negotiations with a number of additional project sponsors," Reilly said. "It's important to point out here that, as of January 2012, over $24 billion in direct loans and loan guarantees have closed to support a diverse range of over 30 wind, solar, electric vehicles and other clean energy projects projected to fund more than 50,000 jobs." But some environmental groups say Obama's budgetary shift is hugely significant because it means no new money for building nuclear power plants -- and they speculate that, at least in part, they have Solyndra to thank for the shift. "The entire loan program has fallen into some disrepute on Capitol Hill ... because of Solyndra and some of the other renewable programs getting in trouble," said Michael Mariotte, executive director of Nuclear Information and Resource Service, an information hub for organizations concerned with nuclear power. The administration "may have decided to cut their losses" and stop providing new funds to the program altogether.

#### Obama’s capital is key

Dallas Morning News 1/2 (Editorial: Actions must match Obama’s immigration pledge, 2013, http://www.dallasnews.com/opinion/editorials/20130102-editorial-actions-must-match-obamas-immigration-pledge.ece)

President Barack Obama said all the right things Sunday about immigration reform. The president told NBC’s Meet the Press that he is serious about getting Congress to overhaul the laws governing immigrants. He even declared that he will introduce an immigration bill this year.¶ This newspaper welcomes that announcement. Texans particularly understand the unique challenges that an outdated immigration system presents. Even though the flow of illegal immigrants into the U.S. has subsided in the last few years, the many holes in the system leave families, schools, businesses and law enforcement struggling. And those are just some of the constituents challenged by flawed immigration laws.¶ The president’s words to NBC’s David Gregory are only that — words. What will really matter is whether he puts his muscle into the task this year.¶ We suggest that Obama start by looking at the example of former President George W. Bush. Back in 2006 and 2007, the Republican and his administration constantly worked Capitol Hill to pass a comprehensive plan. They failed, largely because Senate Republicans balked. But the opposition didn’t stop the Bush White House from fully engaging Congress, including recalcitrant Republicans.¶ Obama may have a similar problem with his own party. The dirty little secret in the 2006 and 2007 immigration battles was that some Democrats were content to let Senate Republicans kill the effort. Labor-friendly Democrats didn’t want a bill, either.¶ And they may not want one this year. That reluctance is a major reason the president needs to invest in this fight. He must figure out how to bring enough Democrats along, while also reaching out to Republicans.¶ In short, the nation doesn’t need a repeat of the process through which the 2010 health care legislation was passed. Very few Republicans bought into the president’s plan, leaving the Affordable Care Act open to partisan sniping throughout last year’s election. If the nation is going to create a saner immigration system, both parties need to support substantial parts of an answer.¶ The new system must include a guest worker program for future immigrants and a way for illegal immigrants already living here to legalize their status over time. Some House Republicans will object to one or both of those reforms, so Speaker John Boehner must be persuasive about the need for a wholesale change.¶ But the leadership that matters most will come from the White House. The president has staked out the right position. Now he needs to present a bill and fight this year for a comprehensive solution. Nothing but action will count.¶ HE SAID IT …¶ “I’ve said that fixing our broken immigration system is a top priority. I will introduce legislation in the first year [of the second term] to get that done. I think we have talked about it long enough. We know how we can fix it. We can do it in a comprehensive way that the American people support. That’s something we should get done.”¶ President Barack Obama, in an interview on Meet the Press Sunday

#### Comprehensive immigration reform is key to the economy - adds 1.5 trillion dollars the GDP

Hesson 12 (Ted, Immigration editor at ABC News, November 19th, http://abcnews.go.com/ABC\_Univision/News/analysis-economic-impact-immigration-reform/story?id=17761157#.UOTyh5JIAho)

To get an idea of what the numbers mean, we looked at two reports from respected researchers — one often cited by reform advocates and another cited by immigration restrictionists. Here's how each breaks down:¶ 1. "The Economic Benefits of Comprehensive Immigration Reform" by UCLA professor Raúl Hinojosa-Ojeda, published by the Cato Institute, a libertarian think tank¶ Summary: Immigration reform would add $1.5 trillion to the U.S. gross domestic product (GDP) over 10 years.¶ This report looks at three scenarios projected over a 10-year period: comprehensive reform, a guest worker program and mass deportation.¶ - Comprehensive reform would include a pathway to citizenship for undocumented immigrants who register, pay a fine and pass a criminal background check. That would add $1.5 trillion to the GDP over 10 years.¶ - A temporary worker program with no path to citizenship would add $792 million to the GDP, about half as much as reform.¶ - Mass deportation would result in $2.6 trillion in lost GDP over 10 years.¶ How does Hinojosa-Ojeda get these numbers?¶ He starts by looking at the last large-scale legalization program in the United States. That would be the 1986 amnesty under President Ronald Reagan. Via this program, nearly 3 million undocumented immigrants became lawful residents. The post-amnesty data -- which looks at a minimum period of three years, between 1988 and 1991 -- showed that legalization boosted wages for undocumented workers.¶ He then takes the wage increase experienced after the 1986 amnesty by this group and applies that to the number of people projected to seek legalization this time around. In Hinojosa-Ojeda's version of comprehensive reform, the immigration system is also adjusted so that the flow of immigrant workers entering the country during the 10-year period his report covers are doing so legally. He adds the higher wages that those legal workers would receive to his projection. "What you get are these very powerful increases in wages for the legalized population and the existing population," Hinojosa-Ojeda says.

## 1NR

### Fusion

#### Even if it’s theoretically possible, fusion can’t be commercialized – prefer our ev, it’s from the grandfather of fusion.

Hirsch, PhD, former director of the US Fusion Energy Program with the Atomic Energy Commission, and part of basically every major energy and fusion institute in existence, ‘12

[Robert, ““A Veteran of Fusion Science Proposes Narrowing the Field,” NYT, http://dotearth.blogs.nytimes.com/2012/10/19/a-veteran-of-fusion-science-proposes-narrowing-the-field/]

Many outstanding people turned to the pursuit of fusion power. A number of fusion concepts emerged and were investigated. Soon it became painfully clear that practical fusion power would not happen quickly. First, we had to develop the science of plasma physics. After decades of effort, a great deal has been learned and accomplished, but a practical fusion power concept has not been forthcoming. Note that I said ”practical fusion power.” Unlike fire, fusion power has to compete against a number of other options. The word “practical” means that a fusion power system must be desirable, based on the realities of the society into which it will be introduced. An unfortunate problem today is that many people in fusion research believe that producing a fusion-something that simply works is the goal, but that is definitely wrong! Fusion power and fire are distinctly different. Let’s consider some specific criteria for practical fusion power. In 1994, the U.S. Electric Power Research Institute – EPRI – convened a panel of utility technologists to develop “Criteria for Practical Fusion Power Systems.” The result was a four-page folder that outlined “Three principal types of criteria:” Economics, Public Acceptance, and Regulatory Simplicity. The criteria are almost self-explanatory, but let me quote from the Economics Criteria: “To compensate for the higher economic risks associated with new technologies, fusion plants must have lower lifecycle costs than competing technologies available at the time of commercialization.” Details for the criteria are given in the report, which I commend to anyone motivated to help develop fusion power. Against these criteria, let’s consider tokamak fusion, the centerpiece of which is ITER – the International Thermonuclear Experimental Reactor – under construction in France. As we know, it’s an enormously large machine, which is generally considered to be a prototype of a practical fusion power plant. Comparing the ITER and the core of a comparable commercial fission reactor shows an enormous difference in size – a factor of 5-10 — ITER being huge by comparison to a fission reactor core. It is known in engineering and technology development that the cost of a finished machine or product is roughly proportional to the mass of the device. Eyeballing ITER compared to a fission reactor core, it’s obvious that an ITER-like machine is many times more massive. Yes, you can argue details, like the hollow bore of a tokamak, but the size of the huge superconducting magnets and their heavy support structures provides no relief. Bottom line – On the face of it, an ITER-like power system will be much more expensive than a comparable fission reactor, so I believe that tokamak fusion loses big-time on cost, independent of details. Next, consider the fact that deuterium-tritium fusion inherently emits copious neutrons, which will induce significant radioactivity in adjacent tokamak structural and moderating materials. Accordingly, a tokamak power system will become highly radioactive as soon as it begins to operate and, over time, radiation damage will render those same materials structurally weak, requiring replacement. In the U.S., as elsewhere in the world, we have a Nuclear Regulatory Commission, which will almost certainly be given the task of ensuring that the public is safe from mishaps associated with tokamak power system failures. Expected regulation will require all kinds of safety features, which will add further costs to tokamak power. While the character of the plasma in a tokamak power reactor will not likely represent a large energy-release safety issue, the superconducting magnets would contain a huge amount of stored energy. If those magnets were to go normal – lose their superconducting properties – the energy release would be very large. It can be argued that the probability of that happening will be small, but it will nevertheless not be zero, so the regulators will require safety features that will protect the public in a situation where the magnets go normal, releasing very large amounts of energy. Accordingly, it is virtually certain that the regulators will demand a containment building for a commercial tokamak reactor that will likely resemble what is currently required for fission reactors, so as to protect the public from normal-going superconducting magnet energy release. Because an ITER-like tokamak reactor is inherently so large, such a building will be extremely expensive, further increasing the costs of something that is already too expensive. Next, there’s the induced radioactivity in the structure and moderator of a tokamak power reactor. Some tokamak proponents contend that structure might be made out of an exotic material that will have low induced radioactivity. Maybe, but last I looked, such materials were very expensive and not in common use in the electric power industry. So if one were to decide to use such materials, there would be another boost to cost, along with an added difficulty for industry to deal with. No matter what materials are chosen, there will still be neutron-induced materials damage and large amounts of induced radioactivity. There will thus be remote operations required and large amounts of radioactive waste that will have to be handled and sent off site for cooling and maybe burial. That will be expensive and the public is not likely to be happy with large volumes of fusion-based radioactivity materials being transported around the country. Remember the criteria of public acceptance. I could go on with other downsides and showstoppers associated with tokamak fusion power, but I won’t. It is enough to say that tokamak fusion power has what I believe are insurmountable barriers to practicability and acceptability. By the way, my arguments assume that tokamak physics and technology works well and is reasonably simple, meaning that not many more components will have to be added to the system to allow it to operate on a steady basis for very long periods of time between the long shutdowns needed to change out radiation-damaged, radioactive materials. What I’ve just described is not a happy story. At some point, probably in a matter of years, a group of pragmatic power industry engineers will be convened to seriously scrutinize tokamak fusion, and they are virtually certain to declare that it cannot become a practical power system. That will certainly be a calamity for the people involved and for the cause of fusion power. Let’s review what I’ve said. First, we have to recognize that practical fusion power must measure up to or be superior to the competition in the electric power industry. Second, it is virtually certain that tokamak fusion as represented by ITER will not be practical.

### Sunsets CP

#### All of our solvency turns are disads to the permutation – diminishing subsidies conditioned on performance are vital to innovation

Jenkins, Director of Energy and Climate Policy at the Breakthrough Institute, ‘12

[Jesse, Congressional Testimony before the Senate Committee on Energy and Natural Resources, 5/22, http://www.energy.senate.gov/public/index.cfm/files/serve?File\_id=31b79a1a-83a0-4ae6-8c80-30fe754ad0ea]

Whatever form it takes, a new suite of advanced energy deployment policies must simultaneously drive market demand and continual innovation. By and large, today’s energy subsidies do not do enough to support America’s innovators, and they have not yet succeeded in driving down the costs of advanced energy technologies far enough to compete with conventional fuels. For example: • Many of today’s clean energy subsidies are focused primarily on supporting the deployment of existing energy technologies at current prices, and most provide no clear pathway to subsidy independence. The federal renewable electricity PTC, for example, has provided the same level of subsidy to wind power since initial enactment in 1992. Subsidy levels increase each year at the rate of inflation, keeping per MWh subsidy levels constant in real dollar terms and providing no clear incentive for continual cost declines or pathway to eventual subsidy independence. • If not designed with care, deployment policies can also lock out more promising but higher risk technologies from markets, slowing their development. This is a challenge in particular for the renewable portfolio standard and clean energy standard policies given serious consideration by this Committee. These policies typically encourage deployment of the lowest-cost qualifying energy technology available—generally wind power or biomass, or in the case of a proposed CES, natural gas-fired plants. Yet if designed in this manner, RPS or CES policies may do little to drive down the price of other advanced energy technologies, such as solar or advanced nuclear reactor designs, that may have higher costs now but hold the potential to become much cheaper in the long-run. • Intermittent and haphazard policy support can also wreak havoc with the business confidence necessary for the long-term investments required to develop new and improved products. The PTC for wind power, for example, was first enacted in 1992, but has since expired three times, and has been renewed a total of seven times, often with less than a month to spare before pending expiration. Other clean tech subsidies, including key tax credits for solar, biofuels, energy efficient products, and other segments have experienced similarly erratic expirations. The market effects are chilling, and many private firms are forced to focus principally on ramping-up production for subsidized markets while they last, rather than pioneering next-generation designs and manufacturing processes for the long-term. The intermittent nature of many advanced energy support policies thus slows the pace of innovation in these sectors and actually prolongs the amount of time these sectors remain reliant on public subsidy. The United States can do better than this. Deployment subsidies and policies should be reformed and designed from the beginning to better support innovative U.S. firms and reward companies for developing, producing, and improving advanced technologies that can ultimately compete on price with both fossil fuels and international competitors alike. Each dollar of federal support today should be optimized to move maturing advanced energy technology sectors towards eventual subsidy independence as soon as possible.

#### Net benefit is politics. Conditioning incentives avoids politics – appeals to Republicans.

NYT, ‘12

[The New York Times, 5-5-12, “The End of Clean Energy Subsidies?”,

<http://www.nytimes.com/2012/05/06/opinion/sunday/the-end-of-clean-energy-subsidies.html?_r=2>]

This alarming news is contained in a new report from experts at the Brookings Institution, the World Resources Institute and the Breakthrough Institute. It is a timely effort to attach real numbers to an increasingly politicized debate over energy subsidies. While Mr. Obama is busily defending subsidies, the Republicans have used the costly market failure of one solar panel company, Solyndra, to indict the entire federal effort to encourage nascent technologies. The Republican assault obscures real successes that simply would not have been possible without government help. Wind power is a case in point. By spurring innovation and growth, a federal production tax credit for wind amounting to 2.2 cents per kilowatt-hour has brought the cost of electricity from wind power to a point where it is broadly competitive with natural gas, sustaining 75,000 jobs in manufacturing, installation and maintenance. But the tax credit is scheduled to expire at the end of this year, with potentially disastrous results: a 75 percent reduction in new investment and a significant drop in jobs. That is just about what happened the last time the credit was allowed to lapse, at the end of 2003. This is clearly the wrong time to step away from subsidies. But it may be the right time, the report says, to institute reforms, both to make the programs more effective and to make them more salable to budget hawks. One excellent proposal is to make the subsidies long term (ending the present boom or bust cycles) but rejigger them to reward lower costs and better performance. The idea is not to prop up clean tech industries forever. It is to get them to a point where they can stand on their own — an old-fashioned notion that, one would hope, might appeal even to House Republicans.

#### Normal means for energy incentives is that they are unconditional – they’re flat and must increase each year to adjust for inflation

Jenkins et al, ‘12

[Jesse (Directs the Energy and Climate Program at the Breakthrough institute) and Mark Muro (Senior Fellow, Metropolitan Policy Program, Brookings Institution), “BEYOND BOOM & BUST”, April 2012, http://assets.nationaljournal.com/Beyond%20Boom%20and%20Bust\_Embargoed\_4\_17.pdf]

Reducing the cost of clean energy technologies will require continuous innovation and improvement even after technologies are commercialized and launched into the marketplace. Yet, by and large, today’s energy subsidies do not do enough to support America’s innovators, and they have not yet succeeded in driving down the costs of clean energy far enough to compete with fossil fuels. The government, however, has a long history of successfully driving innovation and price declines in emerging technologies by acting as a demanding customer to spur the early commercialization, largescale deployment, and steady improvement of cutting-edge technology. 91 Unfortunately, clean tech deployment policies today often closely resemble crop supports, offering a flat production subsidy for any clean energy produced, rather than the demanding military procurement policies that delivered steady improvements and the eventual mass-adoption of everything from radios, microchips, and jet engines, to gas turbines, lasers, and computers. 92 Many of today’s clean energy subsidies are focused primarily on supporting the deployment of existing energy technologies at current prices, and most provide no clear pathway to subsidy independence. The federal renewable electricity PTC, for example, has provided the same level of subsidy to wind power and closed-loop biomass-fueled power plants since initial enactment in 1992 and to geothermal and other qualifying renewable electricity sources since 2004, when it was first extended to them. Subsidy levels increase each year at the rate of inflation, keeping per MWh subsidy levels constant in real dollar terms and providing no clear incentive for continual cost declines or pathway to eventual subsidy independence. If not designed with care, deployment policies can also lock out more promising but higher risk technologies from markets, slowing their development. Renewable portfolio standards, for example, which require utilities to purchase a certain percentage of electricity generation from renewable sources, encourage deployment of the lowest-cost renewable energy technology available—generally wind power or biomass. But they do little to drive down the price of other, clean energy technologies, such as solar or advanced nuclear power designs, that may have higher costs now but hold the potential to become much cheaper in the long-run. 93 The intermittent and haphazard nature of US energy policy also wreaks havoc with the business confidence necessary for the long-term investments required to develop new and improved products. 94 The PTC for wind power, for example, was first enacted in 1992, but has since expired three times, and has been renewed a total of seven times, often with less than a month to spare before pending expiration. Other clean tech subsidies, including key tax credits for solar, biofuels, energy efficient products, and other segments have experienced similarly erratic expirations. The market effects are chilling, and many private firms are forced to focus principally on ramping-up production for subsidized markets while they last, rather than pioneering next-generation designs and manufacturing processes for the long-term. In the worst cases, maintaining lucrative, blunt subsidies over prolonged periods can even create a disincentive for firms to innovate 95 or can support “dead end” technologies that have no viable path to long-term competitiveness. 96

#### This kills topic education – the specifics of incentive design are vital to debates over their effectiveness.

Arvizu, Director of the National Renewable Energy Laboratory, ‘7

[Dan, CQ Congressional Testimony, “ENCOURAGING SOLAR ENERGY,” 6/19, lexis]

We applaud the Committee for its continuing examination of solar and other sources of renewable electricity and fuels. If we are to ensure the nation receives the full range of benefits that renewable energy technologies can provide, we will need a carefully balanced blend of new technology, market acceptance and government policies. It is not a question of whether to rely solely on the market, or on new research, or on government action, as we work to solve our energy problems. To accelerate deployment of renewable energy technologies, we need to effectively combine all three. It's also crucial that this mix of technology, markets and policies be crafted so that each works in conjunction with the others. The reality is that distinct renewable energy technologies - be they solar photovoltaic, solar thermal, wind, biomass power, biofuels or geothermal - are in different places in terms of their economics, technological maturity and market acceptance. While a broad range of policies are needed to spur on these varied technologies, the specifics of policies and incentives to be enacted ideally must be tailored to fit the unique requirements of each of the systems and devices we are seeking to deploy.

#### Process education is more important than substance on this topic – implementation is the KEY ISSUE in energy policy

Nolan, Associate Professor of Law and Dispute Resolution Program Director, ‘11

[Seth, “Negotiating the Wind: A Framework to Engage Citizens in Siting Wind Turbines” Negotiating the Wind: A Framework to Engage Citizens in Siting Wind Turbines, SSRN]

Despite demonstrated need and available technology, the promise of wind energy has yet to live up to its potential. As a society, we see the benefits of renewable sources of energy but struggle to implement our vision through siting of new facilities. In some instances, this gap results from opposition caused by applicants’ and regulators’ emphasis (read: overemphasis) on the substance rather than the process of decision-making. Applicants often enter an approval process expecting that doling out concessions will adequately address citizen opposition. The resulting opposition is often as much a product of what was proposed as how it was proposed.210 Attending to procedural needs as well as substantive needs can offer some solace to weary and suspicious citizens and provide the substrate on which a satisfactory solution can be reached.

#### Severs “should” – it means “must” and requires immediate legal effect.

Summers, Oklahoma Supreme Court, ‘94

[Justice, “Kelsey v. Dollarsaver Food Warehouse of Durant”, 1994 OK 123, 11-8, http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker3fn13]

¶4 The legal question to be resolved by the court is whether the word "should"[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn13) in the May 18 order connotes futurity or may be deemed a ruling *in praesenti*.[14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn14) The answer to this query is not to be divined from rules of grammar;[15](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn15) it must be governed by the age-old practice culture of legal professionals and its immemorial language usage. To determine if the omission (from the critical May 18 entry) of the turgid phrase, "and the same hereby is", (1) makes it an in futuro ruling - i.e., an expression of what the judge will or would do at a later stage - or (2) constitutes an in in praesenti resolution of a disputed law issue, the trial judge's intent must be garnered from the four corners of the entire record.[16](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287" \l "marker3fn16)

[CONTINUES – TO FOOTNOTE]

[13](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn13) "*Should*" not only is used as a "present indicative" synonymous with *ought* but also is the past tense of "shall" with various shades of meaning not always easy to analyze. See 57 C.J. Shall § 9, Judgments § 121 (1932). O. JESPERSEN, GROWTH AND STRUCTURE OF THE ENGLISH LANGUAGE (1984); St. Louis & S.F.R. Co. v. Brown, 45 Okl. 143, 144 P. 1075, 1080-81 (1914). For a more detailed explanation, see the Partridge quotation infra note 15. Certain contexts mandate a construction of the term "should" as more than merely indicating preference or desirability. Brown, supra at 1080-81 (jury instructions stating that jurors "should" reduce the amount of damages in proportion to the amount of contributory negligence of the plaintiff was held to imply an *obligation* *and to be more than advisory*); Carrigan v. California Horse Racing Board, 60 Wash. App. 79, [802 P.2d 813](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=802&box2=P.2D&box3=813) (1990) (one of the Rules of Appellate Procedure requiring that a party "should devote a section of the brief to the request for the fee or expenses" was interpreted to mean that a party is under an *obligation* to include the requested segment); State v. Rack, 318 S.W.2d 211, 215 (Mo. 1958) ("should" would mean the same as "shall" or "must" when used in an instruction to the jury which tells the triers they "should disregard false testimony"). [14](http://www.oscn.net/applications/oscn/DeliverDocument.asp?CiteID=20287#marker2fn14) In praesenti means literally "at the present time." BLACK'S LAW DICTIONARY 792 (6th Ed. 1990). In legal parlance the phrase denotes that which in law is *presently* or immediatelyeffective, as opposed to something that will or *would* become effective in the future *[in futurol*]. See Van Wyck v. Knevals, [106 U.S. 360](http://www.oscn.net/applications/oscn/deliverdocument.asp?box1=106&box2=U.S.&box3=360), 365, 1 S.Ct. 336, 337, 27 L.Ed. 201 (1882).

#### Only subsidy independence can win the clean tech leadership race --- it’s key to access the international markets.

Jenkins, Director of Energy and Climate Policy at the Breakthrough Institute2, ‘11

[Jesse, “A Clean Energy Comeback Strategy”, The Breakthrough Institute, 10-26-11,

<http://thebreakthrough.org/archive/a_clean_energy_comeback_strate>]

Without substantial innovation to improve the performance and reduce the cost of clean energy technologies, the promise that the clean energy sector might become economically viable, much less a cornerstone of American economic revival, will never be realized. The real clean energy race is thus to invent, commercialize, progressively improve, and mass-produce cheap and reliable clean energy technologies that can compete on cost not just with international competitors but also with fossil fuels. In short, the race is to make clean energy cheap and subsidy-independent. The ultimate economic prize is a $5 trillion global energy market expected to double over the next forty years. That economic opportunity dwarfs the value of today's subsidy-dependent and often-volatile clean energy markets. For security, economic, and environmental reasons, the global energy system is modernizing and diversifying. Developing and developed nations alike will move toward new forms of advanced energy technologies that reduce dependence on foreign nations, insulate their economies from volatile energy markets, and are cleaner and thus less costly from a public health perspective. Supplying this massive global market with reliable and affordable clean energy technologies thus represents one of the most significant market opportunities of the 21st century. In this clean energy race, pole position is still up for grabs.

#### Performance-based incentives solve without picking winners – substantially boosts innovation more than the plan

Jenkins, Director of Energy and Climate Policy at the Breakthrough Institute, ‘12

[Jesse, Congressional Testimony before the Senate Committee on Energy and Natural Resources, 5/22, http://www.energy.senate.gov/public/index.cfm/files/serve?File\_id=31b79a1a-83a0-4ae6-8c80-30fe754ad0ea]

Several policies could be structured to meet these criteria, including: • Competitive deployment incentives could be created for various clean tech segments of similar maturity, with incentives for each segment falling steadily over time to demand and reward continual innovation and price improvements.20 • Steadily improving performance‐based standards could create both market demand and spur consistent technology improvement.21 • “Top-runner” programs competitively establish performance standards or financial incentive levels based on the leading industry performers in each market segment, forcing other firms to steadily innovate to stay competitive in the market.22 • Demanding federal procurement opportunities could be created to drive both market opportunities and ensure steady improvement of each successive generation of product, particularly when advanced energy technology products align with strategic military needs.23 • Reverse auction incentives could be established for varying technologies to drive industry competition and innovation.24 If structured to adhere to these criteria, a new era of advanced energy deployment policies will neither select “winners and losers” a priori, nor create permanently subsidized industries. Rather, these policies will provide opportunity for all emerging advanced energy technologies to demonstrate progress in price and performance, foster competitive markets within a diverse energy portfolio, and put these segments on track to full subsidy independence.