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#### A. Interpretation—

#### 1. Nuclear energy production is measured by installed capacity

IAEA 8 [International Atomic Energy Agency, “A Newsletter of the Division of Nuclear Power,” Nuclear Power Newsletter, Vol. 5, No. 3, September, <http://www.iaea.org/Resources/Women/pdf/nenp0908.pdf>]

Energy production of nuclear power plants is a result of an installed capacity and effectiveness of its utilization. In 2007 there was no permanent shutdown, compared to eight in 2006, therefore the installed capacity was driven by investment into construction of new NPPs and into power uprating of existing reactor units. Three new reactors were connected to the grid and one long-term shutdown reactor was reconnected. The total installed capacity of the nuclear industry has risen from 369.8 to 372.2 GW(e) during 2007. Utilization of installed capacity can be measured by the energy availability factor (EAF). It is the percentage of maximum energy generation the plant is ready to supply to the electrical grid to meet its demand.

#### 2. Production incentives are used to stimulate output—distinct from R&D

Suranovic 10 [Steve, associate professor of economics and international affairs at the George Washington University, PhD in economics from Cornell, International Trade: Theory and Policy, v. 1.0, “8.2 Domestic Production Subsidies,” <http://catalog.flatworldknowledge.com/bookhub/reader/28?e=fwk-61960-ch08_s02>]

Domestic production subsidies are generally used for two main reasons. First, subsidies provide a way of raising the incomes of producers in a particular industry. This is in part why many countries apply production subsidies on agricultural commodities: it raises the incomes of farmers. The second reason to use production subsidies is to stimulate output of a particular good. This might be done because the product is assumed to be critical for national security. This argument is sometimes used to justify subsidies to agricultural goods, as well as steel, motor vehicles, the aerospace industry, and many other products. Countries might also wish to subsidize certain industries if it is believed that the industries are important in stimulating growth of the economy. This is the reason many companies receive research and development (R&D) subsidies. Although R&D subsidies are not strictly production subsidies, they can have similar effects.

#### 3. For is exclusive

Clegg, 95 - J.D., 1981 Yale Law School; the author is vice president and general counsel of the National Legal Center for the Public Interest. (Roger, “Reclaiming The Text of The Takings Clause,” 46 S.C. L. Rev. 531, Summer, lexis)

Even if it made no sense to limit the clause to takings "for public use"--and, as discussed below, it might make very good sense--that is the way the clause reads. It is not at all ambiguous. The prepositional phrase simply cannot be read as broadening rather than narrowing the clause's scope. Indeed, a prepositional phrase beginning with "for" appears twice more in the Fifth Amendment, and in both cases there is no doubt that the phrase is narrowing the scope of the Amendment. n20

#### 4. Nuclear power is fission.

EIA 12—U.S. Energy Information Administration [Online Glossary updated regularly, http://www.eia.gov/tools/glossary/index.cfm?id=A]

Nuclear electric power (nuclear power): Electricity generated by the use of the thermal energy released from the fission of nuclear fuel in a reactor.

#### B. Violation—the plan is an incentive for R&D for fusion which isn’t nuclear power

#### C. Vote neg—

#### 1. LIMITS—allowing research & development of random energy sources expands the topic to a theoretical number of energy sources—impossible to predict.

#### 2. GROUND—the only unified neg ground is energy production—futuristic sources guarantee the aff AT WORSE a massive delay before they link to the only ground on the topic.

### 1NC—CP

#### Text—The fifty state governments and all relevant territories of the United States should form regional energy boards modeled after the Southern States Energy Compact and other preexisting regional governance structures with consolidated energy facility siting authority. The regional energy boards should substantially increase [plan—monetary support for fusion energy generation in the United States]. The fifty state governments and all relevant territories of the United States should fund University Nuclear Science and Engineering programs. If necessary, the fifty states should create a common shared tax on high-income families to ensure consistent and durable funding.

#### Funding from other sources solves—key to support existing DOE funding.

Miller 7 (Warren, Research Professor and Associate Director of the Nuclear Security Science and Policy Institute—Texas A%26M University, "Nuclear’s Human Element", A Report By the American Nuclear Society Special Committee on Federal Investment in Nuclear Education, February, [http://www.ans.org/pi/fine/docs/finereport.pdf)](http://www.ans.org/pi/fine/docs/finereport.pdf%29)

On the other hand, the DOE NSE education support programs cannot, alone, provide the resources needed for a healthy and comprehensive national effort. University‐based NSE programs must continue to aggressively seek and obtain research and education support from mission agencies, basic research funding organizations, national laboratories, and industry. Pg. 9

#### Regional governance institutions solve energy problems

**Wiseman 11** [Hannah Jacobs Wiseman, Assistant Professor @ University of Tulsa College of Law, “Expanding Regional Renewable Governance,” Harvard Environmental Law Review, 35 Harv. Envtl. L. Rev. 477, https://litigation-essentials.lexisnexis.com/webcd/app?action=DocumentDisplay&crawlid=1&doctype=cite&docid=35+Harv.+Envtl.+L.+Rev.+477&srctype=smi&srcid=3B15&key=0b1fdcee3cb0feca03ad4e55998ea105]

While numerous entities hold regulatory powers and property rights to exclude potential renewable developers from a renewable parcel, this apparent "overregulation" by an array of entities and institutions has substantial regulatory gaps; as often occurs within regulatory commons, no one entity has taken the helm to form a comprehensive regulatory structure for renewables development. A new form of regional governance institution must thus emerge to address the anticommons and related regulatory commons tragedy in renewable development. These institutions, which this Article describes as regional energy boards, must bundle together the multiple exclusion rights to renewable parcels -- including private, municipal, state, and federal ownership and regulation -- and must consolidate them into a coherent framework. The boards must be independent institutions with regulatory powers, and they must use these powers to resolve overlapping and conflicting rights and provide streamlined yet thorough processes for the approval of renewable energy siting and construction. Once formed and tested, a regional energy governance n34 structure should also be employed for energy issues beyond renewables -- issues that do not necessarily exhibit tragic anticommons qualities but that pose regional challenges. In addition to shared sun and wind resources, many states have oil and gas reservoirs in common. n35 In the Northeast, for example, geologists recently discovered that a massive shale formation underlying much of Appalachia -- the Marcellus Shale -- is an abundant source of now accessible unconventional natural gas. n36 Pennsylvania has allowed rapid gas production from the shale, n37 while New York has imposed a moratorium until it better understands the effects of this production; n38 municipalities have [\*484] also attempted to impose their own limitations on gas development. n39 These and several other Appalachian states are struggling to appropriately regulate extraction techniques n40 and to determine an acceptable pace of development. While anticommons-type problems associated with unsustainable resources, such as fossil fuels, may not from a social policy perspective merit as broad of a solution as that proposed for renewables, collaboration through a regional governing entity would assist entities governing natural gas extraction as they struggle to catch up with and effectively regulate a rapid energy transition. Beyond oil and gas, states in regions with limited access to electricity transmission or energy production share high energy prices and concerns about a reliable energy supply. n41 Coordinated planning for future energy development -- constructing a power plant on the state border, for example, or expanding transmission lines from a power source outside of the region -- could effectively address states' energy challenges. The southeastern states have identified this need and have formed the Southern States Energy Compact, which recognizes that "optimum benefit from and acquisition of energy resources and facilities require systemic encouragements, guidance, and assistance from the party states on a cooperative basis." n42 Other states, recognizing the importance of regional decisionmaking to energy siting, have specifically empowered their agencies to participate in regional energy forums. n43 Yet despite the clear need for a regional approach [\*485] to large-scale renewable energy development and energy planning more generally, the regional institutional framework lacks a coherent delineation in the literature n44 and has not yet been adopted on a meaningful scale. n45 The western states have embarked upon a regional effort to identify ideal areas for renewable energy development -- many of which cross state and municipal lines -- and to encourage transmission from these areas. n46 But even in the West, many states continue to diverge widely in their priorities for and approaches to energy development, n47 and this accentuates the challenges to renewable development. The Western Governors' Association has suggested that "standardized, streamlined, fast-track permitting procedures should be implemented" for utility-scale renewable plants. n48 Although regional institutions have not widely emerged in the energy field, several existing regional governance structures can serve as models for the development of new energy institutions; these institutions have the authority to control land use activities and thus provide useful models for renewable governance. Interstate compact commissions for water basins, for example, govern states' uses of shared river water. The commissions are independent, congressionally-approved regional institutions that issue binding regulations for water use and sometimes water quality, n49 and they have some land use authority in order to protect water quality. n50Similarly, the independent Tahoe Regional Planning Authority enacts land use regulations in the states within the Lake Tahoe watershed. n51 The most successful components [\*486] of these and other regional institutions should inform the decisionmaking structure for the development of renewable energy and broader energy planning in America.

### 1NC DA 1

#### Domestic Funding and ITER are zero sum

**Cunningham 8/15** (“Fusion Budget on Hold’” http://americansecurityproject.org/blog/2012/fusion-budget-on-hold/)  
  
However, **U.S. funding for both ITER and the American domestic fusion program comes out of the same pie, pitting the two against each other**. Congressional efforts to cut government spending have put appropriators in a bind. In order to meet its international commitments, President Obama has proposed to take $45 million out of the domestic program (a 16% cut), and reallocate that money to ITER. The cut to the domestic program would essentially shut down MIT’s Alcator C-MOD fusion project, a facility that is researching smaller and cheaper ways of doing fusion. Scrapping the MIT program would be a huge setback.

The Senate is going along with the President’s budget, appropriating $398 million for the Office of Fusion Energy Sciences, the office through which fusion labs get their funding. The House on the other hand, balked at the President’s request. Instead, it increased funding to $475 million. The two appropriations bills have not been reconciled. Fusion Power Associates has a good explanation of the details [here](http://aries.ucsd.edu/fpa/fpn12-25.shtml).

Realistically, **fusion funding is a sideshow compared to other budget fights in Congress, so the fusion program is hostage to the political season**.  House Speaker John Boehner [reached an agreement](http://www.speaker.gov/press-release/speaker-boehner-house-senate-pass-six-month-cr-september) with Senate Majority Leader Harry Reid to pass a six-month continuing resolution when Congress returns in September. The six-month continuing resolution will mean that fusion funding remains unchanged from FY12 levels (no cuts), at least through early next year. **So, while the fusion program has been spared for a few months, the budget fight will resume in early 2013.**

#### Flips the aff – independently solves extinction

Fedoroff 8 **-** Science and Technology Adviser to the Secretary of State and the Administrator of USAID (Nina, Testimony Before the House Science Subcommittee on Research and Science Education, 4/2, <http://www.state.gov/g/oes/rls/rm/102996.htm>

Science by its nature facilitates diplomacy because it strengthens political relationships, embodies powerful ideals, and creates opportunities for all. The global scientific community embraces principles Americans cherish: transparency, meritocracy, accountability, the objective evaluation of evidence, and broad and frequently democratic participation. Science is inherently democratic, respecting evidence and truth above all.

Science is also a common global language, able to bridge deep political and religious divides. Scientists share a common language. Scientific interactions serve to keep open lines of communication and cultural understanding. As scientists everywhere have a common evidentiary external reference system, members of ideologically divergent societies can use the common language of science to cooperatively address both domestic and the increasingly trans-national and global problems confronting humanity in the 21st century. There is a growing recognition that science and technology will increasingly drive the successful economies of the 21st century.

Science and technology provide an immeasurable benefit to the U.S. by bringing scientists and students here, especially from developing countries, where they see democracy in action, make friends in the international scientific community, become familiar with American technology, and contribute to the U.S. and global economy. For example, in 2005, over 50% of physical science and engineering graduate students and postdoctoral researchers trained in the U.S. have been foreign nationals. Moreover, many foreign-born scientists who were educated and have worked in the U.S. eventually progress in their careers to hold influential positions in ministries and institutions both in this country and in their home countries. They also contribute to U.S. scientific and technologic development: According to the National Science Board’s 2008 Science and Engineering Indicators, 47% of full-time doctoral science and engineering faculty in U.S. research institutions were foreign-born.

Finally, some types of science – particularly those that address the grand challenges in science and technology – are inherently international in scope and collaborative by necessity. The ITER Project, an international fusion research and development collaboration, is a product of the thaw in superpower relations between Soviet President Mikhail Gorbachev and U.S. President Ronald Reagan. This reactor will harness the power of nuclear fusion as a possible new and viable energy source by bringing a star to earth. ITER serves as a symbol of international scientific cooperation among key scientific leaders in the developed and developing world – Japan, Korea, China, E.U., India, Russia, and United States – representing 70% of the world’s current population..

The recent elimination of funding for FY08 U.S. contributions to the ITER project comes at an inopportune time as the Agreement on the Establishment of the ITER International Fusion Energy Organization for the Joint Implementation of the ITER Project had entered into force only on October 2007. The elimination of the promised U.S. contribution drew our allies to question our commitment and credibility in international cooperative ventures. More problematically, it jeopardizes a platform for reaffirming U.S. relations with key states. It should be noted that even at the height of the cold war, the United States used science diplomacy as a means to maintain communications and avoid misunderstanding between the world’s two nuclear powers – the Soviet Union and the United States. In a complex multi-polar world, relations are more challenging, the threats perhaps greater, and the need for engagement more paramount.

*Using Science Diplomacy to Achieve National Security Objectives*

The welfare and stability of countries and regions in many parts of the globe require a concerted effort by the developed world to address the causal factors that render countries fragile and cause states to fail. Countries that are unable to defend their people against starvation, or fail to provide economic opportunity, are susceptible to extremist ideologies, autocratic rule, and abuses of human rights. As well, the world faces common threats, among them climate change, energy and water shortages, public health emergencies, environmental degradation, poverty, food insecurity, and religious extremism. These threats can undermine the national security of the United States, both directly and indirectly. Many are blind to political boundaries, becoming regional or global threats.

The United States has no monopoly on knowledge in a globalizing world and the scientific challenges facing humankind

are enormous. Addressing these common challenges demands common solutions and necessitates scientific cooperation, common standards, and common goals. We must increasingly harness the power of American ingenuity in science and technology through strong partnerships with the science community in both academia and the private sector, in the U.S. and abroad among our allies, to advance U.S. interests in foreign policy.

There are also important challenges to the ability of states to supply their populations with sufficient food. The still-growing human population, rising affluence in emerging economies, and other factors have combined to create unprecedented pressures on global prices of staples such as edible oils and grains. Encouraging and promoting the use of contemporary molecular techniques in crop improvement is an essential goal for US science diplomacy.

An essential part of the war on terrorism is a war of ideas. The creation of economic opportunity can do much more to combat the rise of fanaticism than can any weapon. The war of ideas is a war about rationalism as opposed to irrationalism. Science and technology put us firmly on the side of rationalism by providing ideas and opportunities that improve people’s lives. We may use the recognition and the goodwill that science still generates for the United States to achieve our diplomatic and developmental goals. Additionally, the Department continues to use science as a means to reduce the proliferation of the weapons’ of mass destruction and prevent what has been dubbed ‘brain drain’. Through cooperative threat reduction activities, former weapons scientists redirect their skills to participate in peaceful, collaborative international research in a large variety of scientific fields. In addition, new global efforts focus on improving biological, chemical, and nuclear security by promoting and implementing best scientific practices as a means to enhance security, increase global partnerships, and create *sustainability.*

### 1NC DA 2

#### Immigration reform—top of the agenda, Obama is pushing, will get done—but it’s a fight

CSM 12/28/12 [Immigration reform likely to be at the top of Congress’ agenda in 2013, www.rawstory.com/rs/2012/12/28/immigration-reform-likely-to-be-at-the-top-of-congress-agenda-in-2013]

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.

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.

"It has to be in 2013," says Rep. Raúl Labrador (R) of Idaho, an immigration lawyer who thundered into Congress in the tea party wave of 2010. "If we wait until 2014, it's going to be election time. And you know how efficient we are here during election time."

Recent weeks have seen a flurry of activity on Capitol Hill. In the Senate, a "Gang of Eight"—led by longtime immigration reformers Sen. Chuck Schumer (D) of New York and Republican Sens. John McCain of Arizona and Lindsey Graham of South Carolina—has added freshman Sens. Michael Bennett (D) of Colorado and Mike Lee (R) of Utah, while potential 2016 presidential aspirant Sen. Marco Rubio (R) of Florida leads his own initiative.

Members of the House have seen movement, too. "One thing clearly has changed," says Rep. Luis Gutierrez (D) of Illinois, the lawmaker who co-wrote a 2005 comprehensive immigration reform measure with now Sen.-elect Jeff Flake (R) of Arizona. "Nobody is talking about self-deportation. Nobody is talking about how [Arizona's controversial immigration law] should be the standard applied across the land. Nobody is talking about vetoing the DREAM Act," which offers a path to citizenship for some young undocumented immigrants.

"We are having wonderful conversations," Representative Gutierrez says.

That more moderate tone from the GOP is what the November election has wrought.

In a postelection analysis and poll of Latino voters, Republican polling group Resurgent Republic offered a searing critique of the GOP's political strategy of pumping up turnout among white voters, often by championing hard-line policies on immigration issues that turn off key Asian and Hispanic voters.

"Republicans have run out of persuadable white voters," wrote conservative pollster Whit Ayres and Jennifer Korn, the head of the right-leaning Hispanic Leadership Network, in a recent research memo. "Trying to win a national election by gaining a larger and larger share of a smaller and smaller portion of the electorate is a losing political proposition."

Between 2008 and 2012, white voters shrank two percentage points to 72 percent of the electorate, while Asian and Latino voters expanded a percentage point each to 3 percent and 10 percent, respectively.

While GOP presidential candidate Mitt Romney won 60 percent of white voters, 71 percent of Latinos and 73 percent of Asian-Americans backed Mr. Obama—up four percentage points and 11 percentage points from 2008, respectively.

And those numbers of minority voters are only going to grow. For the next two decades, 50,000 Latino voters will turn 18 every month, adding an additional New Hampshire of voters to the US each year into the 2030s.

While Resurgent Republic's poll showed that Hispanics aren't singularly focused on immigration issues, Republican politicians who favor immigration reform see the issue as primary: The GOP's message of conservative family values, entrepreneurship, and individual freedom won't reach Latino voters unless the immigration question is solved.

"This is like a wall that stops the other issues from getting through," says Rep. Mario Diaz-Balart (R) of Florida, a longtime immigration reform advocate. "And while that wall is there, the Republican Party has a serious problem."

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.

Some conservatives say any form of citizenship given to illegal immigrants—no matter the conditions attached to it—constitutes an "amnesty," which is a guarantee only of more illegal immigration unless the nation's borders are firmly secured and stringent workplace verification systems are put in place.

But a recent poll by George Washington University and Politico found 62 percent of Americans support a proposal that would allow illegal immigrants to earn citizenship over a period of several years, with 40 percent strongly supporting such a measure. Only 35 percent opposed it.

Some Democrats on the Hill are extending a friendly hand to the GOP. When the Congressional Hispanic Caucus—which is entirely Democratic—offered its vision for immigration reform, for example, it served up principles rather than a specific bill, a move received by Republicans as attempting to maximize common ground.

But Democrats also know they are in a position of power.

"You've got a realization on the part of GOP leadership not just in the House but in the Republican Party writ large that if they don't do something about it, they aren't going to win the presidency again," says Rep. Zoe Lofgren (D) of California, a leading immigration reform advocate.

For that reason, she says, Republicans "aren't going to get the credit" for pushing immigration through, but they "can still get the blame if they block" it.

Latino advocacy groups and labor unions, emboldened by the community's growing electoral power, vow to take the fight to those who stand in immigration reform's way in 2013.

"This comprehensive immigration reform for the Latino community is personal. The fact that we've come out in record numbers in 2012 was personal. And that's a calculation that members of Congress don't understand," says Maria Teresa Kumar, executive director of Voto Latino. "If they are not with us, 2014 may not look pretty with them."

The president, too, has political pressure to pursue immigration reform. He has already come up short once on immigration-reform promises: In 2009, he said that a comprehensive immigration solution would be a top priority.

Yet his first term also saw record numbers of undocumented immigrants deported. Only this summer, after he directed immigration officials to defer deportation of some young illegal immigrants, was he seen as making good on promises to the Latino community.

"The president says that his biggest failure in the first term was not moving forward with immigration reform," says Hector Sanchez, executive director of the Labor Council for Latin American Advancement. "The Latino community decided to give him a second chance."

Obama has publicly vowed to make immigration reform an immediate priority in his second term, which could begin just on the other side of the "fiscal cliff" negotiations.

"He's the one who has the mandate on this subject; he's the guy who got the voters who care most intensely about this," says Bruce Morrison, a former Democratic congressman from Connecticut who was involved in immigration reform efforts in the 1980s and early '90s.

And while Republicans are on board now, there's a reason they've been hesitant to tackle immigration reform in the past. For one, a vocal part of their base views any form of citizenship for illegal immigrants as a repudiation of the rule of law. Whether these voters—or their representatives—can be persuaded to accept amnesty is an open question.

"We can negotiate about the DREAMers and things like that, but the vast, vast majority of the people who are here illegally—say 12 million people—I think they came here after the age of 18. They knowingly violated the law, and we have to have respect for our law," Labrador says.

Moreover, increasing legal immigration above the current level of 1 million annually could be seen as a blow to those born in America.

Hurting "the American worker with bad immigration policy is not going to get [Republicans] more Hispanic votes," says Roy Beck, executive director of Numbers USA, a group that advocates lower immigration levels. "They've got to do something else."

In that respect, increasing legal immigration might be a difficult sell in 2013.

"I do not see Congress acting in this area in a robust way until the labor market is stronger," says Andrew Schoenholtz, deputy director for the Institute for the Study of International Migration at Georgetown University. "Just how strong is hard to tell."

And then there are the questions that perhaps matter most in the Beltway: Whose plan is on the table first? Which party sets the initial terms for debate?

#### Fusion unpopular—it’s a non-starter in today’s budget climate

Vastag 6/25/12 [Brian Vastag science reporter at The Washington Post, where he covers general science, the environment, climate change, and space, Budget cuts threaten pursuit of nuclear fusion as a clean energy source, Washington Post, 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]

“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.”

#### Picking an energy winner sparks massive Congressional backlash.

Addison 12—Associate Editor of E & P Magazine [Velda, Logjam Between Congress, Administration Hobbles Oil Policy, http://blogs.epmag.com/rebecca/2012/06/27/logjam-between-congress-administration-hobbles-oil-policy/]

The continued bickering between Congress and the administration of President Barack Obama continues to be a major stumbling block for the industry.

The list of industry projects and initiatives that are being undermined grows on a daily basis. These projects include offshore leasing, the Keystone XL Pipeline, hydraulic fracturing, and exporting LNG. It would be nice, I suppose, to assume that this only happens with Democrats in the White House and Republicans in Congress. But given how many different administrations from both parties have tried to create a national energy policy and how all of those efforts have foundered, it is obvious that partisanship continues to impact policy to the detriment of the country — not just between political parties but also between regions of the country, and consumers and producers. During this administration, more than others, the partisanship seems to be much more bitter and divisive. How will the country be able to overcome such rancor? Why has it been so hard to generate an energy policy given the importance of energy in every country?

Those are questions we may never answer, but we at least need to come close. It is interesting to watch other countries be clear on energy policy. Perhaps being the largest energy user in the world and expecting that energy will always be there has tainted our way of looking at a policy aimed at keeping the US running.

With competition increasing for the remaining energy supplies and environmental considerations driving fuel choices, it would seem that having an energy policy would be even more important in today’s world. Given our reliance on information technology and its need for energy to keep going, we may be headed for a different kind of logjam that we may not be ready to unravel. What if the power plants were idled and the computers shut down? Would that make it important enough to finally devise an energy policy? I would be interested in hearing some solutions to this problem. We do need an energy policy, and we can’t wait for an emergency to create it.

#### Capital key to passage—unforeseen events could change it

Shifter 12/27/12—President of the Inter-American Dialogue & adjunct professor of Latin American politics at Georgetown University’s School of Foreign Service [Michael Shifter, Will Obama Kick the Can Down the Road?, http://www.thedialogue.org/page.cfm?pageID=32&pubID=3186]

Not surprisingly, Obama has been explicit that reforming the US’s shameful and broken immigration system will be a top priority in his second term. There is every indication that he intends to use some of his precious political capital—especially in the first year—to push for serious change. The biggest lesson of the last election was that the “Latino vote” was decisive. No one doubts that it will be even more so in future elections. During the campaign, many Republicans -- inexplicably -- frightened immigrants with offensive rhetoric. But the day after the election, there was talk, in both parties, of comprehensive immigration reform.

Despite the sudden optimism about immigration reform, there is, of course, no guarantee that it will happen. It will require a lot of negotiation and deal-making. Obama will have to invest a lot of his time and political capital -- twisting some arms, even in his own party. Resistance will not disappear.

There is also a chance that something unexpected could happen that would put off consideration of immigration reform. Following the horrific massacre at a Connecticut elementary school on December 14, for example, public pressure understandably mounted for gun control, at least the ban of assault weapons. But a decision to pursue that measure -- though desperately needed -- would take away energy and time from other priorities like immigration.

#### Immigration reform expands skilled labor—spurs relations and economic growth in China and India.

LA Times 11/9/12 [Other countries eagerly await U.S. immigration reform, http://latimesblogs.latimes.com/world\_now/2012/11/us-immigration-reform-eagerly-awaited-by-source-countries.html]

"Comprehensive immigration reform will see expansion of skilled labor visas," predicted B. Lindsay Lowell, director of policy studies for the Institute for the Study of International Migration at Georgetown University. A former research chief for the congressionally appointed Commission on Immigration Reform, Lowell said he expects to see at least a fivefold increase in the number of highly skilled labor visas that would provide "a significant shot in the arm for India and China." There is widespread consensus among economists and academics that skilled migration fosters new trade and business relationships between countries and enhances links to the global economy, Lowell said. "Countries like India and China weigh the opportunities of business abroad from their expats with the possibility of brain drain, and I think they still see the immigration opportunity as a bigger plus than not," he said.

#### US-Indian relations avert South Asian nuclear war.

Schaffer 2 [Spring 2002, Teresita—Director of the South Asia Program at the Center for Strategic and International Security, Washington Quarterly, Lexis]

Washington's increased interest in India since the late 1990s reflects India's economic expansion and position as Asia's newest rising power. New Delhi, for its part, is adjusting to the end of the Cold War. As a result, both giant democracies see that they can benefit by closer cooperation. For Washington, the advantages include a wider network of friends in Asia at a time when the region is changing rapidly, as well as a stronger position from which to help calm possible future nuclear tensions in the region. Enhanced trade and investment benefit both countries and are a prerequisite for improved U.S. relations with India. For India, the country's ambition to assume a stronger leadership role in the world and to maintain an economy that lifts its people out of poverty depends critically on good relations with the United States.

### 1NC—Spinoffs

#### There are a ton of optics firms that already exist and the tech is already being adopted by the military and it solves their internet advantage- their author

**Howard 11**

(Courtney E., senior technical editor at Computer Graphics World, "Optical technology: at the speed of light," 4-1-11, <http://www.militaryaerospace.com/articles/print/volume-22/issue-4/technology-focus/optical-technology-at-the-speed-of-light.html-http://www.militaryaerospace.com/articles/print/volume-22/issue-4/technology-focus/optical-technology-at-the-speed-of-light.html>)

Optical technology: at the speed of light

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Optical components and systems benefit aerospace and defense applications with high speed, low weight, and increased security.

The requirement for compact, lightweight, low-power electronics-exacerbated by the growing demand for greater data throughput and bandwidth-is driving the use of optical technologies in military and aerospace applications. Optical components and systems are increasingly being investigated, as well as adopted, by aerospace and defense engineers for a wealth of land, sea, air, and space applications.

"Customers are definitely requesting more optical solutions in the mil-aero realm, and the interest is typically driven by one of more of optics' advantages over copper," explains Gregory Powers, market development manager at TE Connectivity Ltd. in Seattle (Tyco Electronics was renamed TE Connectivity Ltd. last month). "There are several benefits to optical computing, including: reduction of size, weight, and power (SWaP); electromagnetic interference (EMI) immunity; the fact that fiber optics offers a secure communication line where any tapping can be detected; ease of installation; and data rate over distance.

"Some of these advantages are interdependent," Powers adds. "For instance, because optical fiber is immune to EMI, there is no need for shielding of the cables. Shielding is heavy, adds size, and brings about installation and application problems. In composite aircraft, special provisions have to be made for bonding the shields to assigned grounds and protection of shielding relative to lightning strike. Optical computing can minimize all these issues."

IBM has unveiled CMOS Integrated Silicon Nanophotonics chip technology, which is said to enable a 10X improvement in integration density and produce smaller, faster, and more power-efficient chips than is possible with conventional technologies.

Optical advantages

Optical components and systems are attractive for airborne applications, ranging from a flight-critical databus to a video or sensor link, given the desire for the reduction of SWaP, ease of installation, and EMI immunity, Powers says. In ground-based applications-such as secure bunker-to-bunker communications, electro-optic (EO) sensor mast-to-control station links, or RF over fiber antennae links-the advantage of optics over distance often is the deciding factor, followed by EMI immunity, security, and reduced weight.

"The big thing we're seeing is in a lot of aircraft, they want to reduce weight," observes Kirk Lussier, program and account manager at DiCon Fiberoptics in Richmond, Calif. "Fiber weighs a lot less [than copper]-that's a big advantage of moving to fiber-optic systems.

"In telecom, fiber deployment started with the longest networks, where optical technology proved itself quickly from a cost perspective," says Robert Schleicher, vice president of product development at DiCon Fiberoptics. "Over the years, it has spread out and proven itself in smaller and smaller networks-regional and then local networks, even within office networks-and to some extent, the same trend is now extending itself to the networks within planes, ships, and land vehicles."

Farther and faster

Optical components hold the potential for higher performance, an attractive attribute given the amount of data being acquired and exchanged on the digital battlefield. "Optical interconnects allow faster data transmission and, thus, higher processing speeds," admits Andreas Gerster, worldwide business development manager of optics at Agilent Technologies in Santa Clara, Calif.

"As transceivers that are usable on aircraft become faster and faster, designers want higher data rates," Lussier notes. "It's not a problem for optical technology. Our switches are all-optical; there's no OEO (optical-electrical-optical) conversion, so it can handle any data rate."

Optical technologies provide the ability to transport high volumes of data over significant distances. Copper backplanes and cable assemblies, as are deployed throughout mil-aero environments, are extremely length sensitive. "The greater the distance, the higher the attenuation and the lower the data rate," Powers explains. "Optical fiber has much, much lower attenuation, thereby eliminating distance as a primary design constraint. Computers that need to communicate can be hundreds of meters apart and interact as though they are in the same chassis."

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"The transmission speeds in electronics have now reached 10G (10 gigabits) and more per I/O (input/output) pin, which drives all kinds of digital interconnects based on copper to the limit," Gerster says. "This makes optical computing technologies much more attractive for applications in the aerospace and defense sector."

Rugged ebedded computing systems need to have high-data-rate input/output, for which fiber optics are ideal, Powers says. "The I/O could be a relatively short link, connecting two plug-in modules in the same chassis, or it could be a longer run, say from a shipboard sensor mast to a processor and data storage bank. There are numerous data-intensive applications where the advantages of optical computing pay dividends, including radar installations, EO sensor suites, persistent wide area surveillance, signals intelligence, and more."

TE Connectivity Ltd. provides rugged optical connectivity solutions for use in various high-reliability applications.

Design distinction

"Most processing is done in an elec- tronic chip (an ASIC, a semiconduc- tor) and, at some point, you convert to light," Powers explains. After this electro-optic conversion, "the light can be sent through circuit boards in a waveguide, which is typically outside of the circuit board in today's applications. As soon as the light is introduced to a fiber, you can route that fiber anywhere. You can take that very fast data stream and run it from a daughter module through the backplane to an I/O connector, and then it could stay inside the chassis or be sent a kilometer away. The computers really know no difference.

"That whole concept is powerful," Powers continues. "What fiber optics enable is not distance-sensitive, like copper is. If someone is designing a large platform-a 747 or C5 aircraft or a military base perimeter system-they can have these cards virtually anywhere they need them. Let's say it was going in an aircraft, you could put these boxes where it made sense in the aircraft for weight distribution or heat or protection issues; with copper, you need to co-locate the items because of length sensitivity. That's one of the powerful aspects of fiber optics: location-independent architecture. It frees the designer of distance constraints."

Safe and secure

Higher security is, likewise, a big advantage in mil-aero applications. Optics, by nature, are "immune to electronic countermeasures and reconnaissance, as there are no electromagnetic emissions," Gerster adds.

Optical computing, networking, and communications avoid TEMPEST (Transient Electromagnetic Pulse Standard) issues, increasing security. "TEMPEST relates to emissions from copper cables carrying signals that could be sniffed or detected in some way," Schleicher describes.

"When the information is in a fiber, there's no electromagnetic radiation by which the information can get out and be sniffed by someone you don't want to sniff it. You have to get to the fiber physically to get the information," Lussier explains.

"In defense applications that make use of data communications over copper wire, the barrage of emissions testing used to prove the security of the data path is typically referred to as TEMPEST testing. The use of fiber-optic communication can significantly reduce this sort of data security issue. TEMPEST testing is a big concern for product developers and our customers," Schleicher continues. "You want to make sure the information doesn't get to the wrong people. Improved data security is another key advantage of fiber optics in general, and of all- optical systems in particular."

IBM Research staff unveiled nanophotonic avalanche photodetectors on a silicon chip.

Optical technology also plays a role in physical security. Fiber-optic intrusion detection technology from Future Fibre Technologies (FFT) in Mountain View, Calif., physically protects highly sensitive communication and data networks at an unnamed U.S. military facility.

The installation, using the FFT Secure Link system as an "alarmed carrier" Protective Distribution System (PDS), protects Secret Internet Protocol Router Network (SIPRNet) data links between facilities against illegal interference, data tapping, and unauthorized physical disturbance. SIPRNet is a system of high-security, interconnected computer networks used by the U.S. Department of Defense (DOD) and the U.S. Department of State to transmit classified information.

"The FFT solution is perfect for military networks that require real- time notification of intrusion attempts," says Emmett McGrath, Secure(it) program manager for Communications Supply Corp., a subsidiary of WESCO Inc., in Carol Stream, Ill. "Secure Link is a cost-effective alternative to conducting periodic visual inspections and provides real-time notification of the precise location of intrusion attempts."

Industry investment

The benefits of optical technologies are many, and organizations are working to deliver capable fiber-optic components, systems, standards, and information to the mil-aero community for myriad applications.

Calumet Electronics Corp. officials have deployed a new optical interconnect research lab at the company's production facility in Calumet, Mich. "Electronic operating systems have had a steadily increasing need for higher digital data-transfer rates within on-board components, circuit boards, and backplanes," a spokesperson says. Current state-of-the-art interconnect systems use "metal interconnects with limited data-transmission capacity. Latencies associated with the speed at which the data can be transferred impose a limit on the overall system performance."

Calumet engineers are working with specialists at Michigan Technological University of Houghton, Mich.; Dow Corning Corp. of Midland, Mich.; and Lockheed Martin of Bethesda, Md., in a joint research-and-development program funded by the Department of Defense to develop manufacturing capability to produce circuit boards with optical interconnections that provide data processing solutions.

"The deployment of this facility will allow us to mature optical interconnect materials and manufacturing processes that will take this critical technology from our lab to our production floor," states Stephen Marshall, national sales manager at Calumet. He anticipates the company will provide a "Made in the USA solution for this quantum shift in interconnection technology."

The Boeing P-8A Poseidon's test flight incorporated an optical secure switching unit from DiCon Fiberoptics.

TE Connectivity, too, specializes in connectivity, including electrical, optic, and electro-optic conversion. "These technologies are all fundamental within optical computing," mentions Powers, who is a member of the VITA 66 Working Group within the VITA Standards Organization in Fountain Hills, Ariz. The VITA 66, Fiber Optic Interconnect draft specifications are in a mature state, following more than two years of work, and are likely to be completed and ratified this year.

"VITA 66, which is the optic connectors, and Vita 67, which are RF connectors, are moving forward rapidly as draft specifications. They will round out the VPX (VITA 46) ecosystem; you'll have high-speed digital connectors and also a choice of RF and optic modules that are compatible," Powers adds. "VITA 66 will be quite revolutionary."

"Fiber-optic interfaces today are largely through the front panel. In two-level maintenance and conduction-cooled systems, front-panel I/O is generally not desired," says Steve Edwards, chief technology officer, Curtiss-Wright Controls Embedded Computing (CWCEC) in Ashburn, Va. "VITA 66, when approved, will provide options for bringing fiber-optic I/O directly into a module through the backplane side of the card, which will help system integrators who require fiber interfaces."

CWCEC provides Ethernet switches and I/O products with fiber-optic interfaces available through the front panel. The company's VME-682 and VPX6-684 support up to four fiber gigabit Ethernet ports in 6U VME and VPX form factors. Curtiss-Wright Controls Electronics Systems, headquartered in Santa Clarita, Calif., delivers Fibre Channel and Serial Front Panel Data Port mezzanines, also with front-panel fiber interfaces. CWCEC is releasing packaged Ethernet switch products with a mix of 1 GbE and 10 GbE optical ports. Curtiss-Wright Controls Electronics Systems will support VITA 66 backplanes.

VITA is listed as a hosting organization to the new OpComp technical forum, designed to bring together academia, research and development, and application developers to discuss optical computing technologies for critical Embedded Computing systems. The inaugural OpComp is scheduled to take place September 26-27, 2011 in San Jose.

P-8A Poseidon

"When DiCon Fiberoptics was founded in 1986, we were making optical switches for the U.S. Navy," Lussier says, noting increased interest from defense programs as time goes on. The DiCon Fiberoptics Secure Switching Unit (SSU)-an optical switching device that enables secure fiber-optic signals to be routed by the company's MEMS (microelectromechanical systems) optical switches-was used in the first mission systems test flight of the Boeing P-8A Poseidon aircraft. U.S. Navy officials plan to replace the existing P-3C fleet with P-8A Poseidon anti-submarine, anti-surface warfare, intelligence, surveillance, and reconnaissance aircraft.

IBM's nanophotonic avalanche photodetector generates an avalanche of electrons.

"We have integrated our COTS (commercial off-the-shelf) fiber-optic switch components into the SSU to provide Boeing a reliable way to route secure fiber-optic signals in the P-8A," Schleicher says. The mil-spec, common criteria-certified, all-optical SSU delivers compact size, low weight, low power consumption, the ability to withstand harsh environments, and a frictionless design that enables operation for billions of switch cycles.

In a FOG

Fiber-optic gyros (FOGs), which span the performance range from tactical to strategic applications in mil-aero, are at the forefront of optical fiber technology, says Jay Napoli, vice president of FOG and OEM sales at KVH Industries Inc. in Middletown, R.I. "FOG technology is unchallenged in terms of performance in demand- ing environments, including wide operating temperature and high vibration."

Intel researcher Richard Jones holds an optical computing innovation: a Hybrid Silicon Laser chip

The KVH high-performance FOGs are employed in the Javelin Basic Skills Trainer (BST), used by the U.S. Army to train soldiers to operate the Javelin anti-tank missile system. KVH's FOGs precisely measure the shoulder-fired BST's movement, and the system's computer synchronizes that movement with the digital imagery scenario shown on the simulator's viewfinder.

"In the Javelin BST, KVH's solid-state, all-fiber FOGs measure angular rotation precisely and then deliver high-speed data to the simulator's computer, enabling the BST to provide the trainee with a very realistic and accurate user experience," Napoli describes. Precision FOGs are well suited to an expanding number of optical and image stabilization applications, including mobile mapping, dynamic surveying, gimbaled cameras, autonomous vehicles, and underwater remote-controlled vehicles.

FLIR Systems Inc. in Wilsonville, Ore., also provides FOGs, such as its TacFLIR III, for airborne, land, maritime, and unmanned applications.

UAV FOG

Israel-based Rafael Advanced Defense Systems has adopted KVH's dual-axis DSP-4000 FOGs for integration within its Remote Weapon Station (RWS), which provides critical optical and weapon stabilization capabilities to increase RWS accuracy and effectiveness. "Remote weapon stations like those produced by Rafael are playing an increasingly critical role on the battlefield, enabling soldiers to acquire and fire upon targets while remaining protected from hostile fire within the armored hull of the vehicle," Napoli says. KVH delivered to Rafael an enhanced version of its militarized, dual-axis DSP-4000 all-fiber gyro, featuring low noise, high bandwidth, high resolution, and stabilization and tracking capabilities for turret, antenna, optical, and weapon stabilization systems.

The Tamam Navigation FOG from Israel Aerospace Industries (IAI) in Arlington, Va., is an airborne navigation and attitude heading reference system for unmanned aerial vehicles, target drones, small aircraft, and helicopters, and accurate targeting applications in stabilized electro- optical/infrared systems. The system combines an FOG-based inertial measurement unit from the Tamam Division of IAI's Systems Missiles and Space Group and a GPS receiver.

Tackling testing

Testing is an all-important aspect of the use of optical components and systems in mil-aero environments. In the absence of a test system and protocol, "an operator would be disconnecting and reconnecting a fiber every time they want to test a different line," Lussier explains. "Every time you disconnect and reconnect, you put the connector at risk. You really have to be careful and clean it. If you get a piece of dust on it and reconnect it without being aware it's there, you can introduce problems in the information flow. It won't get through correctly." DiCon Fiberoptics' test systems, used by defense contractors, automate testing processes via software.

Agilent Technologies provides a portfolio of test and measurement instruments and systems for the design and manufacturing of components for optical computing. "Through Agilent's expertise in military and aerospace electronic test, we provide customers with greater assurance in system readiness, enabling them to focus on fulfilling today's mission and managing the transition to what comes next," Gerster says.

IBM Research scientists working on optical computing developed the nanophotonic avalance photodetector.

Agilent officials helped establish a new chip-scale, micro- and nanophotonic-systems testing facility on the University of California, San Diego campus. The new facility is part of the National Science Foundation Major Research Instrumentation project, and is set up in conjunction with the multi-university Center for Integrated Access Networks, led by The University of Arizona. The facility supports testing and characterization of micro- and nano-scale, ultra high-speed optical components and subsystems.

Fiber's future

Optical technologies and components are likely to enjoy a bright future in mil-aero applications. Technology firms intend to bring rapid optical advancements to myriad applications in aerospace and defense environments.

"Over time, I expect to see more and more appearances of wavelength-division multiplexing (WDM) to get more bandwidth out of the fiber infrastructure," Schleicher predicts. "It has been prevalent for years in telecom, which is now migrating from fixed DWDM (dense wavelength-division multiplexing) configurations to ones that are reconfigurable in real time. In mil-aero, perhaps the next step is some form of DWDM, and then reconfigurable optical networks over time, as well." After all, tailoring an infrastructure to changing data patterns, adding and removing service installations, and reconfiguring a network on the fly certainly hold promise for mil-aero applications.

#### Takes 20 years and way more action than just research

CCAS 9, Coalition for the Commercial Application of Superconductors, Superconductivity Present and Future Applications, http://www.ccas-web.org/pdf/ccas\_brochure\_web.pdf

Recent progress in superconductivity follows a pattern that marked previous developments in new materials - for example, in transistors, semiconductors and optical fibers. Materials-based technology development entails high risk and uncertainty compared to more incremental innovations. It typically takes 20 years to move new materials from the laboratory to the commercial arena. Yet products using new materials often yield the most dramatic benefits for society in the long run.¶ The long lead times inherent in HTS technology development necessitates a sustained government role, and government-industry partnerships play a pivotal role in this process. These partnerships require stable and consistent funding and a tolerance for risk. Careful planning is required to ensure parallel progress in related fields, such as cryogenics, to assure broad commercial acceptance of new LTS and of HTS technology. Prospective customers such as electric utilities require a stable and symmetrical climate for investment in research, development and demonstration projects.

#### NIMBY and regs block solvency (Their author)

**CCAS 9** – Coalition for the Commercial Application of Superconductors, "Superconductivity: Present and Future Applications", http://www.ccas-web.org/pdf/ccas\_brochure\_web.pdf-http://www.ccas-web.org/pdf/ccas\_brochure\_web.pdf

At the same time, utility shareholders are insisting on strong financial performance and more intensive use of existing utility assets. Moreover, gaining approval to site new infrastructure - both generating plants as well as transmission lines - has become extremely difficult in the face of landowner and community opposition and the NIMBY (“not in my back yard”) phenomenon. This is especially the case in urbanized areas where power needs are concentrated. As a result, utilities face lengthy and uncertain planning horizons, as well as a rising risk of costly blackouts and other reliability problems

#### New tech is insufficient and won’t be adopted (Their author)

**CCAS 9** – Coalition for the Commercial Application of Superconductors, "Superconductivity: Present and Future Applications", http://www.ccas-web.org/pdf/ccas\_brochure\_web.pdf-http://www.ccas-web.org/pdf/ccas\_brochure\_web.pdf

Issues and Recommendations

In many ways, the electric power industry is at a crossroads. Within the past few years, electric power industry structural reform efforts have stalled perceptibly. The current gridlock in policy reforms and power flows is largely due to the mounting difficulty of expanding the power delivery network. Without a way to expand the “superhighway system” that supports power flows, recent competitive market reforms simply cannot succeed. HTS technology can play an important role in reforms that threaten the power industry and our overall economy

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However, before HTS technology solutions can enjoy broad acceptance, they must undergo field trials. Such demonstrations play a crucial role in establishing a record of reliability and working out grid integration issues. Despite the acute needs facing the electricity sectors, it is widely observed that investor-owned utilities have taken a cautious and conservative approach to adopting new technology solutions in recent years. This has resulted from several factors including: a perception of asymmetric regulatory risks; disallowances resulting from past technology failures; and the loss of sites where experimental technologies can be tested without potentially adverse consequences for customers. Industry restructuring efforts underway since the early 1990’s, moreover, have had the unfortunate effect of undermining investment in jointly-funded industry R&D. There is an urgent need to reverse this trend. Government bodies - including legislatures, regulatory commissions and research-oriented agencies - can foster a more positive climate for HTS “early adopters.” Comprehensive field trials of these advanced technologies require, by their nature, stable funding on a multi-year basis. There are several specific measures that government bodies can undertake to support the more rapid commercialization of these and other promising grid technologies:

• Encouragement of additional demonstration and pilot projects of advanced grid technologies.

• More favorable rate treatment for grid-related research and development expenditures, which have undergone a steep decline since the early 1990s.

• More thorough review of all feasible alternatives in the regional planning process - including low-impact grid upgrades along with other conventional and non-conventional solutions.

• Review of the criteria governing the use of “clean energy funds” and other state mechanisms to promote new technology development and deployment.

For many emerging technologies, the “missing link” to market acceptance is a reliable pathway to market that could be provided or enhanced by innovative grid technologies enabled by HTS.

#### No impact to terrorism.

Mueller 10 [John, Woody Hayes Chair of National Security Studies at the Mershon Center for International Security Studies and a Professor of Political Science at The Ohio State University, A.B. from the University of Chicago, M.A. and Ph.D. @ UCLA, Atomic Obsession – Nuclear Alarmism from Hiroshima to Al-Qaeda, Oxford University Press]

Properly developed and deployed, biological weapons could potentially, if thus far only in theory, kill hundreds of thousands, perhaps even millions, of people. The discussion remains theoretical because biological weapons have scarcely ever been used. For the most destructive results, they need to be dispersed in very low-altitude aerosol clouds. Since aerosols do not appreciably settle, pathogens like anthrax (which is not easy to spread or catch and is not contagious) would probably have to be sprayed near nose level. Moreover, 90 percent of the microorganisms are likely to die during the process of aerosolization, while their effectiveness could be reduced still further by sunlight, smog, humidity, and temperature changes. Explosive methods of dispersion may destroy the organisms, and, except for anthrax spores, long-term storage of lethal organisms in bombs or warheads is difficult: even if refrigerated, most of the organisms have a limited lifetime. Such weapons can take days or weeks to have full effect, during which time they can be countered with medical and civil defense measures. In the summary judgment of two careful analysts, delivering microbes and toxins over a wide area in the form most suitable for inflicting mass casualties-as an aerosol that could be inhaled-requires a delivery system of enormous sophistication, and even then effective dispersal could easily be disrupted by unfavorable environmental and meteorological conditions.

#### No retaliation – Conway is from 2003 and assumes Bush.

#### No meltdowns.

**Spencer 11** (Jack Spencer, Research Fellow in Nuclear Energy in the Thomas A. Roe Institute for Economic Policy Studies at The Heritage Foundation “U.S. Nuclear Policy After Fukushima: Trust But Modify,” 5/18/11)[http://www.heritage.org/research/reports/2011/05/us-nuclear-policy-after-fukushima-trust-but-modify](http://opencaselist.paperlessdebate.com/xwiki/bin/create/%2F%2Fwww.heritage/org%2Fresearch%2Freports%2F2011%2F?parent=Harvard.Herman%2DTandet+Neg)

One of the problems with the emerging dialogue is that some commentators and U.S. policymakers have assumed that America’s nuclear industry and regulatory bodies and policies mirror those of Japan. They do not. The United States has an effective, multifaceted regulatory regime that has already addressed many of the mistakes and weaknesses that Fukushima seems to have exposed, including earthquake and tsunami preparedness and the modification of older reactors to meet new and evolving safety standards. On the other hand, the accident should raise serious questions about America’s lack of nuclear-waste disposal plans.

Earthquakes and Tsunamis

While building nuclear plants to withstand earthquakes and tsunamis (and other severe natural phenomena) is a new issue for many Americans, the U.S. nuclear industry and U.S. nuclear regulators have spent a great deal of time developing specific protocols for just such events. American regulators mandate that all U.S. reactors be built not only to withstand the most powerful earthquake ever recorded for their respective sites, but also to withstand the strongest earthquakes that geologists think are possible for each site. Current earthquake, tsunami, and flooding regulations are now under review, as indicated by the Nuclear Regulatory Commission (NRC).

As these reviews are conducted, the NRC and policymakers must ensure that additional regulations promote true safety, not just the perception of safety. Further, policymakers must recognize that plant owners and operators are highly motivated to maintain safe operations and are in many ways better prepared to ensure public health and safety than federal regulators. Under current U.S. policy, the plant operators are primarily responsible for plant safety. That is why the best approach will be for nuclear regulators to set and enforce high standards—and allow plant operators in the industry to determine how best to meet them.

The Mark I Containment System

According to the Nuclear Energy Institute, 23 U.S. boiling-water reactors share the same basic containment design, the Mark I, as the Fukushima reactors.[1] At first glance, this is troubling, especially in light of past NRC studies that had identified problems with the containment systems of those reactors. Often ignored, however, are the significant safety modifications made to these designs as a result of ongoing assessments of reactor safety.

The history of the Mark I containment design in the U.S. is a testament to the effectiveness of the American system of nuclear regulation for maintaining public health and safety. Federal regulators identified a number of shortcomings with the original design that posed potential safety problems. The industry responded by forming a Mark I Owners Group to determine how to change the designs to address the safety concerns; the plants were then modified accordingly. Additional reviews led to further upgrades. For example, procedures to supply off-site power and water to reactors and fuel pools have been developed in the event that all on-site power and backup power is lost. Hardened containment venting has been added to every plant to ensure that pressure can be safely released from the containment should there be a system breakdown. Recent reports indicate that a similar modification may have been added to the Japanese reactors but could have malfunctioned.[2] Regardless, U.S. plants have the new venting and nuclear operators should ensure that they are working properly.

#### Fukushima proves

**Wheeler 12** (John Wheeler, Producer of "This Week in Nuclear"; Manager in the Nuclear Industry; Former Senior Reactor Operator; Nuclear Workforce Planning and Workforce Development Expert, “Whos' Really to Blame for Fukushima Health Impacts?” 3/12/12)[http://theenergycollective.com/johnwheeler/79128/anti-nuclear-hysterics-not-melted-reactors-blame-fukushima-health-impacts](http://theenergycollective.com/johnwheeler/79128/anti-nuclear-hysterics-not-melted-reactors-blame-fukushima-health-impacts" \t "_blank)

As is often the case, the passage of time yields clarity about events, and the nuclear power plant accident at Fukushima is no different. It has become clear that the misinformation and hysterics by anti-nuclear groups and individuals were mostly wrong. Their doomsday prophesizing actually worsened human suffering and environmental impacts by contributing to unwise decisions by political leaders in Japan and elsewhere to shut down nuclear plants. In contrast, bloggers and experts from within the nuclear community accurately predicted outcomes and human health impacts.

As was predicted on this blog and elsewhere, the multi-barrier reactor containment design protected the public. Contrary to claims by anti-nuclear groups, the melted cores did NOT burn through the reactor vessels. The containment structures remained virtually intact. The damaged reactor fuel remained inside the reactor vessels and containment systems.

Despite preposterous claims by Greenpeace and others, there were no chunks of plutonium scattered across the countryside. Only radioactive gasses escaped over the land, and most of that gas was short lived Iodine that has long since decayed away.

As reported on Bloomberg and other news sources, no one in the public was harmed by radiation from the damaged reactors. A small number of plant workers received higher than normal radiation exposures, without lasting effects. Any hypothetical future health effects will be immeasurably low and will be indistinguishable from normal disease rates within the general population.

No one, not even the “Fukushima 50″, was exposed to life threatening amounts of radiation. Journalists who flew across the Pacific to cover the story received more radiation exposure from cosmic rays in flight than they received from the reactors once on the ground.

#### The IRGC will prevent war from escalating

**Taheri, 07  -** Iranian dissident and former editor of Kayhan, Iran's main daily newspaper. (Amir, Gulf News, 6/13, <http://angryarab.blogspot.com/2007/06/they-were-supposed-to-impose-israeli.html>)

 In Persian mythology, no warrior worth his salt would enter battle before a good dose of rajaz. Put simply, rajaz is translated as boasting. However, the term covers a broader range of meanings.   The hero steps into the battlefield, draws his sword, swirls several times and then stops to address the adversary who has likewise taken position. He might recite a qasida (ode) recalling the martial deeds of his ancestors. Or, he might declaim a satirical sonnet mocking the enemy. In the modern military lexicon, rajaz could be regarded as psychological warfare.   Against that background, recent statements by several key figures in the Khomeinist leadership could be seen as rajaz. These are people who appear to have bought into President Mahmoud Ahmadinejad's theory that a limited war against the United States is inevitable and that, once it is fought, the Americans will run away, leaving Tehran to set the agenda for the Middle East and, perhaps, even beyond.   What is odd, however, is that Iran's top brass apparently do not share Ahmadinejad's belief that a duel with the US would be short and sweet, let alone that it would end with Tehran's victory.   The only senior IRCG commander to partially echo Ahmadinejad's rajaz, is Brigadier Mohammad Baqer Zulqadr, the Deputy Interior Minister for Security and the bete-noire of liberals in Tehran.   Why should IRGC commanders be anxious to distance themselves from Ahmadinejad? After all, the radical president, himself a former IRCG member, was their handpicked candidate in the presidential election of 200  Ahmadinejad's political rivals, including Hashemi Rafsanjani, claim that the IRCG filled the ballot boxes to ensure its candidate's victory.   Rafsanjani also claims that the IRGC engineered Ahmadinejad's victory to strengthen its hold on Iran's state-dominated economy. IRGC's commanders now account for a good part of Iran's entrepreneurial elite.   Some analysts believe that the IRGC has replaced the Shiite clergy as the wealthiest stratum of Iranian society.   Mohammad Khatami, the mullah who preceded Ahmadinejad as president, had prepared a massive privatisation programme aimed at transferring state-owned assets worth $18 billion to private companies controlled by mullahs and their partners in the bazaars.   The idea was to limit the IRGC's economic clout and restore the balance of economic power in favour of the clergy and the traditional merchant classes.   Ahmadinejad has redesigned the privatisation scheme to enable the IRCG to secure a major share. The IRGC is grateful for the favour but not to the point of endorsing Ahmadinejad's strategy of provoking war with the US.   The IRGC commanders prefer a strategy of low intensity operations and proxy wars against the US and its regional allies, notably Israel.   Low intensity operations and proxy wars sap the morale of the enemy without giving them a pretext for using their superior military might against the Islamic Republic. There is no guarantee that a full-scale war would not transmute into regime-change.   Specific cause   The IRGC has a more specific cause for concern. It knows that in case of a major war it would be the principal target of US attacks. The destruction of the IRGC could leave the mullahrchy defenceless and vulnerable to a power grab by the regular army in alliance with the political opponents of Khomeinism.   Iran might become another Iraq, as far as the US is concerned. But Ahmadinejad and his IRGC backers could end up where Saddam Hussain and his Baathist cohorts did.   We are faced with a paradox. The IRGC is behind almost all of the mischief that the Islamic Republic has done in the region in the past 25 years.   Right now, however, it is the key opponent of a full-scale war with the US. The question is whether the IRGC could act in time, perhaps by forcing Ahmadinejad's ouster, to prevent what it regards as the worst-case scenario for the regime.

#### Alt cause -- Senkaku and rare earth.

**Chan, ‘10**

[John, “Sino-Japanese relations remain tense,” 10-29, <http://www.wsws.org/articles/2010/oct2010/chjp-o29.shtml>]

Sino-Japanese relations have continued to fester in the wake of a sharp dispute last month over the arrest of a Chinese trawler captain by Japanese authorities in waters near the contested islets of Diaoyu (known as Senkaku in Japan) in the East China Sea. Faced with Chinese retaliation, the Japanese government released the captain, but tensions remain. The area around the Diaoyu/Senkaku islands, currently controlled by Japan, has significant undersea energy reserves. In mid September, China had suspended planned talks with Japan over the joint exploitation of disputed gas fields in the East China Sea. Tokyo threatened “countermeasures” if China broke their 2008 agreement on joint development and proceeded to drill for gas. Last week, Tokyo alleged that it was “highly likely” that China had started drilling in the large Shirakaba gas field (known as Chunxiao in China). Japanese plans to send a seismic survey ship to the area could lead to another confrontation with China, as Beijing has reportedly deployed two destroyers to patrol the Chunxiao field. This week, Beijing sent maritime patrol ships to the seas near the Diaoyu/Senkaku islands and announced plans to build 36 patrol ships of a comparable size to Japan’s coast guard vessels. Frictions have also continued over Chinese restrictions on its export of rare earths, which are vital for the manufacture of various hi-tech products, including electronics. In the midst of last month’s dispute, China informally blocked the export of rare earth minerals to Japan. China has a virtual monopoly on the global production of rare earths. Subsequently, Beijing also halted exports to the US and Europe in line with a previous decision to impose export quotas to conserve its reserves of the materials. Beijing has been under mounting pressure to resume exports. Last Sunday, Japanese Trade Minister Akihito Ohata called on Beijing to resume rare earth shipments to Japan. However, visiting Chinese Commerce Minister Jiang Yaoping rejected the appeal, declaring that China was slowing its exports to Japan and other countries as part of “counter-smuggling” measures, and was not imposing an international embargo. As a result of cheap production, China currently accounts for about 95 percent of the world’s annual output of rare earths. While the US and Europe have been affected by China’s export restrictions, the impact on Japan is particularly severe as it is the world’s largest importer of rare earths. According to one estimate, Japan’s strategic reserve of rare earths would run out by next April, if China’s ban remained in force. Tokyo is seeking alternative supplies from Mongolia and Vietnam. Yesterday, according to the New York Times, China ended its de facto embargo and resumed rare earth exports, including to Japan. While the shortages will ease in the short-term, the long-term problem remains. As the newspaper explained: “Under his year’s quota—30,300 tonnes of authorised shipments—only a few thousand tonnes remain to be exported. Meanwhile, annual world demand for Chinese rare earths approaches 50,000 tonnes, according to industry estimates.” China’s present restrictions have sent prices soaring. The underlying tensions are clear from Japanese Prime Minister Naoto Kan’s decision to expand the Japanese military. Speaking during an inspection of troops in Tokyo on Monday, he justified his more active military policy by pointing to the Chinese “threat” and the need to enhance the US-Japan alliance.

### 1NC CMod

#### Current cuts won’t affect domestic fusion --- duplication solves.

**Malakoff**, 3/21/**2012** (David, Proposed U.S. Fusion Cuts Ignite Debate, Science Insider, American Association for the Advancement of Science, p. <http://news.sciencemag.org/scienceinsider/2012/03/proposed-us-fusion-cuts-ignite.html>)

Members of the panel repeatedly asked Brinkman about the implications of a plan, outlined in the Obama Administration's 2013 budget request released in February, to trim DOE's fusion energy sciences budget by 0.8%, to $398 million. At the same time, the budget would increase the U.S. contribution to ITER, a $23 billion fusion reactor being built in Cadarache, France, to $150 million, up from $105 million this year. To help pay for the ITER increase, DOE is proposing to shut down a fusion experiment known as the Alcator C-Mod at the Massachusetts Institute of Technology (MIT) in Cambridge. Cutting C-Mod, which is one of three major fusion devices in the United States, would save $18 million in the next fiscal year, which begins in October. That plan, Brinkman told committee members, partly reflected an effort to avoid duplication, since C-Mod does research that could also be done elsewhere in the United States and abroad. "I don't want to belittle the MIT work, [they have] done some very fine work," he said. But the other two U.S. fusion projects—particularly the DIII-D tokamak operated by General Atomics in San Diego, California—are now more scientifically productive, he said.

#### General Fusion solves --- will commercialize fusion soon.

**Cunningham**, 9/17/**2012** (Nicholas, Startup Company Hopes to do Fusion Energy Cheaper and Faster, American Security Project, p. http://americansecurityproject.org/blog/2012/startup-company-hopes-to-do-fusion-energy-cheaper-and-faster/)

However, one small company, backed by venture capital, hopes to make fusion energy a reality in much shorter time frame. General Fusion, a company based in Canada, is seeking to achieve “net energy gain” – more energy out than is put in – by the end of next year. This is an ambitious goal. In comparison, an internationally-supported fusion reactor is under construction in the south of France, with major fusion labs around the world contributing their expertise, and they hope to achieve net energy gain sometime in the 2020’s. General Fusion also calculates that it can do it at a fraction of the cost. It is backed by $32.5 million in venture capital, notably from Chrysalix, a cleantech venture capital firm. It also received about $14 million in grant money from the Canadian government. When compared to the billions in funding for large fusion labs, it is easy to understand the excitement surrounding General Fusion. So how do they plan on proving fusion is possible cheaper and faster than the big labs? General Fusion is combining the two main approaches to fusion energy (magnetic confinement fusion and inertial confinement fusion) into a technique called “Magnetized Target Fusion.” According to their website: “Magnetized target fusion first traps a relatively low-temperature and low-density plasma of deuterium and tritium in a magnetic field (similar to magnetic fusion) and then compresses the plasma to high-temperature and high-density fusion conditions (much like inertial confinement fusion). This hybrid approach compresses the target more slowly than inertial confinement fusion, allowing the energy for compression to be delivered by much less expensive technology than lasers. Magnetized target fusion also creates higher density conditions than magnetic fusion, reducing the required containment time. Together, this combination of a slower compression rate and shorter containment time results in a simpler, cheaper and less power-intensive fusion generator design.” General Fusion believes it will prove net energy gain by the end of 2013. After that, the next step will be to build a full-scale demonstration plant, estimated to be complete by 2016 at a cost of about $1 billion. If successful, General Fusion believes it can have commercial reactors on the grid by the end of the decade.

#### Nuclear weapons are protected from hacking

Green 2 (Joshua, Editor – Washington Monthly, “The Myth of Cyberterrorism”, Washington Monthly, November,

http://www.washingtonmonthly.com/features/2001/0211.green.html#byline)

When ordinary people imagine cyberterrorism, they tend to think along Hollywood plot lines, doomsday scenarios in which terrorists hijack nuclear weapons, airliners, or military computers from halfway around the world. Given the colorful history of federal boondoggles--billion-dollar weapons systems that misfire, $600 toilet seats--that's an understandable concern. But, with few exceptions, it's not one that applies to preparedness for a cyberattack. "The government is miles ahead of the private sector when it comes to cybersecurity," says Michael Cheek, director of intelligence for iDefense, a Virginia-based computer security company with government and private-sector clients. "Particularly the most sensitive military systems." Serious effort and plain good fortune have combined to bring this about. Take nuclear weapons. The biggest fallacy about their vulnerability, promoted in action thrillers like WarGames, is that they're designed for remote operation. "[The movie] is premised on the assumption that there's a modem bank hanging on the side of the computer that controls the missiles," says Martin Libicki, a defense analyst at the RAND Corporation. "I assure you, there isn't." Rather, nuclear weapons and other sensitive military systems enjoy the most basic form of Internet security: they're "air-gapped," meaning that they're not physically connected to the Internet and are therefore inaccessible to outside hackers. (Nuclear weapons also contain "permissive action links," mechanisms to prevent weapons from being armed without inputting codes carried by the president.) A retired military official was somewhat indignant at the mere suggestion: "As a general principle, we've been looking at this thing for 20 years. What cave have you been living in if you haven't considered this [threat]?"

## \*\*\* 2NC

### 2NC Overview

#### AND opens the floodgates to affs with incentive effects—that’s unlimited

Webb 93—lecturer in the Faculty of Law at the University of Ottawa (Kernaghan, “Thumbs, Fingers, and Pushing on String: Legal Accountability in the Use of Federal Financial Incentives”, 31 Alta. L. Rev. 501 (1993) Hein Online)—italics in the original

One of the obstacles to intelligent discussion of this topic is the tremendous potential for confusion about what is meant by several of the key terms involved. In the hopes of contributing to the development of a consistent and precise vocabulary applying to this important but understudied area of regulatory activity, various terms are defined below.

In this paper, "financial incentives" are taken to mean disbursements 18 of public funds or contingent commitments to individuals and organizations, intended to encourage, support or induce certain behaviours in accordance with express public policy objectives. They take the form of grants, contributions, repayable contributions, loans, loan guarantees and insurance, subsidies, procurement contracts and tax expenditures.19 Needless to say, the ability of government to achieve desired behaviour may vary with the type of incentive in use: up-front disbursements of funds (such as with contributions and procurement contracts) may put government in a better position to dictate the terms upon which assistance is provided than contingent disbursements such as loan guarantees and insurance. In some cases, the incentive aspects of the funding come from the conditions attached to use of the monies.20 In others, the mere existence of a program providing financial assistance for a particular activity (eg. low interest loans for a nuclear power plant, or a pulp mill) may be taken as government approval of that activity, and in that sense, an incentive to encourage that type of activity has been created.21 Given the wide variety of incentive types, it will not be possible in a paper of this length to provide anything more than a cursory discussion of some of the main incentives used.22 And, needless to say, the comments made herein concerning accountability apply to differing degrees depending upon the type of incentive under consideration.

By limiting the definition of financial incentives to initiatives where *public funds are either disbursed or contingently committed*, a large number of regulatory programs with incentive *effects* which exist, but in which no money is forthcoming,23 are excluded from direct examination in this paper. Such programs might be referred to as *indirect* incentives. Through elimination of indirect incentives from the scope of discussion, thedefinition of the incentive instrument becomes both more manageable and more particular. Nevertheless, it is possible that much of the approach taken here may be usefully applied to these types of indirect incentives as well.24 Also excluded from discussion here are social assistance programs such as welfare and *ad hoc* industry bailout initiatives because such programs are not designed primarily to *encourage* behaviours in furtherance of specific public policy objectives. In effect, these programs are assistance, but they are not incentives.

#### 2. Ground—they completely unbalance it--by just funding R and D, they ELIMINATE cores such as energy markets and tradeoffs—it’ll be decades before our links kick in, if ever. In the meantime, they get contrived process based advantages about things like science leadership and STEM workers.

EIA 11 [“Direct Federal Financial Interventions and Subsidies in Energy in Fiscal Year 2010,” July, http://www.eia.gov/analysis/requests/subsidy/pdf/subsidy.pdf]

Research and Development (R&D). These are federal expenditures aimed at a variety of goals, such as increasing U.S. energy supplies or improving the efficiency of various energy consumption, production, transformation, and end-use technologies. R&D expenditures generally do not directly affect current energy consumption, production, and prices, but, if successful, they could affect future consumption, production, and prices.

### AT: “for” means “in support of”

Fusion is in support of plasma physics not nuclear power

Adams 6 [Rod, Founder of Adams Atomic Engines, Inc, Host and producer of The Atomic Show Podcast, 12-21, <http://neinuclearnotes.blogspot.com/2006/12/truth-about-government-subsidies-for.html>]

One piece of information that is missing in your piece is a distribution between R&D for fusion research versus R&D for fission. I think both are lumped together in the nuclear category, even though fusion is more about long term support for plasm physicists than it is about focused research on solving current and near future energy supply problems. It should be no surprise to anyone who knows me that I think that fusion money should never come out of the Department of Energy. If supported at all, it should come from someplace like DARPA. It definitely should not be counted as a subsidy for the nuclear power industry.

### AT: Reasonability

#### Open the floodgates—their interpretation allows multiple different categories of incentives to be topical

Stehn 96 [Jurgen, PhD, head of the Public Relations Center at the Kiel Institute for the World Economy, “Subsidies, countervailing duties, and the WTO : towards an open subsidy club,” EconStor, Kieler Diskussionsbeiträge, No. 276, <http://www.econstor.eu/dspace/bitstream/10419/894/1/212471082.PDF>]

All subsidies that are categorized as nonefficient should be ranked according to their potential competition (trade) distortion effects. It can be realistically assumed that the competition effects of subsidies are the higher, the closer the respective subsidy base is to the end of the value- added chain of a firm. For example, an export subsidy, i.e., a subsidy for the sale of a product, might exert stronger competition effects than a subsidy to basic R&D. Hence, all nonefficient subsidies should be grouped in one of the following seven categories: (1) subsidies to basic R&D; (2) subsidies to applied R&D; (3) subsidies for the adaption to new environmental standards; (4) investment subsidies (including regional subsidies); (5) production subsidies; (6) sales subsidies (export subsidies, import substitution subsidies); and as a special case (7) subsidies for promoting the general operation of firms or industries (subsidies covering the losses of firms, debt forgiveness, etc.).

### AT: En add on

#### Fusion is always 20 years away—no chance it ever becomes a cost-competitive source of power.

[Charles Seife](http://www.slate.com/authors.charles_seife.html), 1/3/2013. Correspondent for Science. “Fusion Energy’s Dreamers, Hucksters, and Loons,” Slate, http://www.slate.com/articles/health\_and\_science/nuclear\_power/2013/01/fusion\_energy\_from\_edward\_teller\_to\_today\_why\_fusion\_won\_t\_be\_a\_source\_of.html.

Just a few weeks ago, a bunch of fusion scientists used South Korean money to begin [designing a machine that nobody really thinks will be built](http://www.princeton.edu/main/news/archive/S35/60/40I47/index.xml?section=topstories) and that probably wouldn't work if it were. This makes the machine only slightly more ludicrous than the one in France that may or may not eventually get built and, if and when it's finally finished, certainly won't do what it was initially meant to do. If you've guessed that the story of fusion energy can get a bit bizarre, you'd be right.

For one thing, the history of fusion energy is filled with crazies, hucksters, and starry-eyed naifs chasing after dreams of solving the world's energy problems. One of the most famous of all, [Martin Fleischmann](http://www.nytimes.com/2012/08/12/science/martin-fleischmann-cold-fusion-seeker-dies-at-85.html?pagewanted=all&_r=0), died last year.[\*](http://www.slate.com/articles/health_and_science/nuclear_power/2013/01/fusion_energy_from_edward_teller_to_today_why_fusion_won_t_be_a_source_of.html#correction) Along with a colleague, Stanley Pons, Fleischmann thought that he had converted hydrogen into helium in a beaker in his laboratory, never mind that if he had been correct he would have released so much energy that he and his labmates would have been fricasseed by the radiation coming out of the device. Fleischmann wasn't the first—Ronald Richter, a German expat who managed to [entangle himself in the palace intrigues](http://en.wikipedia.org/wiki/Ronald_Richter) of Juan Peron, beat Fleischmann by nearly four decades—and [the latest schemer](http://ecat.com/), Andrea Rossi, won't be the last.

The reason's easy to see: On paper, fusion energy has almost unlimited potential. A fusion reaction releases an extraordinary amount of energy by slamming together light atoms, such as hydrogen, to make heavier ones, such as helium. (Fission is essentially the opposite: breaking apart heavy atoms, such as uranium, to make lighter ones.) Fusion is the same process that powers the sun—and it's so efficient that we'd have enough atomic fuel on Earth to satisfy our civilization's need for energy for, essentially, forever. The problem is that it's really hard to slam those atoms together hard enough. You need incredibly high temperatures, tens or hundreds of millions of degrees Celsius, so that the atoms are moving fast enough to get the reaction going. But as you heat your fuel up, you have to keep it contained. A 100-million-degree plasma wants to explode in all directions, but if you're going to keep the reaction going, you have to keep it bottled up. What do you make the bottle out of?

Advertisement

The sun's bottle is gravity. Because the sun is so massive—more than 300,000 times the mass of our planet—it has an enormous gravitational field. It's this field that compresses and constrains the hydrogen fuel and keeps it from flying off every which way. But without a sun-size mass to provide the gravity, you've got to find other ways.

One way—and it works beautifully—is to use an atom bomb as the bottle. On Nov. 1, 1952, America used fusion energy to wipe the Pacific island of Elugelab off the face of the planet. The device at the heart of the "[Ivy Mike](http://www.ctbto.org/specials/infamous-anniversaries/1-november-1952-ivy-mike/)" test was essentially a big, chilly tank of heavy hydrogen. At one end was a Nagasaki-type plutonium bomb, which, when it exploded, compressed the fuel, heated it to millions of degrees, and kept it bottled up. For a fraction of a second, we unleashed the power of the sun upon the surface of the Earth. The bomb that leveled Hiroshima was the [equivalent of about 15 kilotons of TNT](http://www.nuclearpathways.org/Docs/pdfs/00313791.pdf). Ivy Mike was about 10 megatons, nearly 700 times as powerful. And there is theoretically no upper limit to how large you can make these devices if you so desire. (The Soviet Union detonated a [50-megaton whopper](http://www.ctbto.org/specials/infamous-anniversaries/30-october-1961-the-tsar-bomba/) in the 1960s.)

[The design works](http://nuclearweaponarchive.org/Library/Teller.html), but it’s a pretty poor solution to the world's energy needs. It's tough to turn a fusion weapon into a safe supplier of electricity. That isn't to say we haven't tried to harness the H-bomb. Edward Teller, the Strangelove-ian father of Ivy Mike, tried to convince the world that fusion weapons could be used for peaceful purposes, from [controlling the weather](http://books.google.com/books?id=LSYDAAAAMBAJ&pg=PA81&lpg=PA81) to [nuclear fracking](http://www.atomictourist.com/gasbug.htm) to [carving an Alaskan harbor out of bedrock](http://arcticcircle.uconn.edu/SEEJ/chariotseej.html) to nuking the moon. Yes, Edward Teller wanted to nuke the moon to, in his words, "observe what kind of disturbance it might cause."

Teller's dream of unlimited fusion energy didn't die with him. The Lawrence Livermore National Laboratory, Teller's former stomping grounds, is now the site of a monstrous $4 billion-plus fusion project known as the [National Ignition Facility](https://lasers.llnl.gov/). The idea is to compress and bottle up a pea-sized pellet of hydrogen by using a laser so huge that it would make any red-blooded moon-nuking megalomaniac proud. The putative goal is to generate more energy through fusing hydrogen atoms than the energy that was put in by the laser in the first place. And NIF scientists say that [they'll achieve success in 2010](http://cosmiclog.nbcnews.com/_news/2010/01/28/4350708-is-fusion-success-in-sight) ... rather, [they'll achieve success by October 2012](http://www.sfgate.com/bayarea/article/Penrose-Albright-to-direct-Lawrence-Livermore-lab-2325572.php) ... rather, NIF has succeeded at the crucial goal of showing that Livermore scientists' predictions of success were all dead wrong.

**It's par for the course. Livermore has been predicting imminent success with laser fusion since the late 1970s—always failing miserably at fulfilling every prediction**. In fact, critics (myself included) have long said that all the chin music about NIF being a source of fusion energy was nonsense. The laser is designed for studying nuclear weapons, not for generating energy. (And it won't even do the weapons job very well.) Yet scientists at Livermore keep pretending that their hyper-expensive laser research is somehow going to produce fusion energy, even though they've got to go through Rube Goldberg-esque variations of the idea to make it look like they've got a shot at success. (For those keeping score at home, [the latest project, too](https://str.llnl.gov/JulAug11/dunne.html), will be an abject failure if it ever gets funding.)

Livermore is far from alone when it comes to overselling fusion. Way back in 1955, before the invention of the laser, physicists were predicting that fusion energy would be [on tap within 20 years](http://books.google.com/books?id=sUEEAAAAMBAJ&pg=PA177&lpg=PA177). Back then, the only workable method of bottling up a cloud of million-degree hydrogen, short of setting off an atomic bomb, was to use giant magnets. At that time, a number of scientists around the world attempted to design machines that would [heat and confine burning hydrogen](http://diglib.princeton.edu/pdfs/PPL001/c0002.pdf) clouds with powerful electromagnetic fields. They didn't work as predicted; even after [decade](http://news.bbc.co.uk/2/hi/science/nature/7190813.stm) upon [decade](http://select.nytimes.com/gst/abstract.html?res=F60712F93F5F167493C0AB1788D85F428785F9) of false starts, the magnetic bottles were just too leaky. Yet fusion energy was still always just around the next corner.

Magnetic fusion wasn't just for the Americans, but also for the Soviets, the Germans, the Japanese, the British—everybody who was anybody had a magnetic fusion program that would put power on the grid within the next few decades. At least this was the case until the 1985 Soviet-American Summit in Geneva, when Reagan and Gorbachev agreed that our countries would [research fusion energy together](http://millercenter.org/president/speeches/detail/3924). Within a few years, everybody who was anybody was now part of a big multibillion-dollar project to build a giant magnetic fusion bottle known as ITER.

It takes a truly international effort to create something as powerfully screwed up as ITER. Yet if your only source of information were the [ITER project's own history](http://www.iter.org/proj/iterhistory), you'd have no clue just how rocky the project has been behind the scenes. There's no mention of the nasty battles over cost overruns in the late 1980s and early 1990s. There isn't any hint of how scientists working on domestic fusion projects—whose budgets were getting eaten by ITER—worked behind the scenes to scuttle the international project. (And they succeeded: In 1998, the United States pulled out of the project, sending the whole endeavor back to the drawing board.) There's no sign of the dramatic scaling down of the machine's design (ITER had become ITER-Lite). Nor is there any acknowledgement that the new, cheaper, machine would simply be unable to achieve ITER's original goal of "ignition and sustained burn"—a fusion reaction that can be kept going indefinitely.

In the aftermath of the U.S. pullout, the remaining partners regrouped, settled on the cheap design and a bare-bones budget. The United States then rejoined, and construction crews even broke ground in France for the reactor site. ITER is currently under construction in France. But despite these hopeful developments, the reborn project is foundering—dragged down by the very same forces that doomed the original ITER. The bare-bones budget ([supposedly around $5 billion](http://bric.postech.ac.kr/science/97now/03_1now/030131d.html) when the United States rejoined the project) has swollen back up to Falstaffian proportions (the latest estimate is [$20 billion](http://news.sciencemag.org/sciencenow/2012/08/how-to-line-a-thermonuclear-reac.html)), and each year, the estimated completion date just keeps getting pushed further and further into the future. (A [quick look into the Internet wayback machine](http://web.archive.org/web/20110717024135/http:/www.iter.org/proj/iterandbeyond) shows the [dates in flux](http://www.iter.org/proj/iterandbeyond).)

The present trajectory of the reborn ITER looks incredibly familiar to anyone who watched the original project go down in flames. First comes ballooning costs and schedule slippage, and then, like clockwork, the United States begins to have difficulty coming up with the money it promised. Back in 2008, U.S. officials started telling Congress that, given tight budgets, we were likely [not going to be able to shoulder](http://www.aip.org/fyi/2008/107.html) our agreed-upon share of the ITER project costs. In an attempt to come up with the money, the Department of Energy has been squeezing our domestic fusion program, but there simply isn't enough cash to go around. (As Sen. Dianne Feinstein asked Secretary of Energy Steven Chu in March, "And if we continue to fund [ITER], where would the $300 million [for our soon-to-be annual ITER contribution] come from?" Secretary Chu's answer: "Senator, [you're asking a very important question we've asked ourselves](http://www.aip.org/fyi/2012/045.html).") Naturally, domestic fusion scientists whose budgets are being slashed [are freaking out](http://www.physicstoday.org/resource/1/phtoad/v65/i12/p14_s1?bypassSSO=1).

Viewed against this backdrop, the recent announcement by Princeton Plasma Physics Laboratory that it's working with South Korea to design a fusion reactor—one that doesn't have a snowball's chance in hell of ever being built—demonstrates the chaos that's gripped the fusion community. The scientists at PPPL are promising a billion-watt demonstration fusion power plant in the 2030s (20 years away!), without using any data from ITER. Since the whole point of ITER is to assist in the design of a demonstration fusion power plant, the implication seems to be that the $20-billion project is pretty much superfluous. (Without any sense of cognitive dissonance, even ITER's website suggests that scientists will [complete the design of a demonstration power plant in 2017](http://www.iter.org/proj/iterandbeyond), two years before ITER gets plugged in, at the same time they emphasize how crucial ITER is to the prospect of a future fusion power plant.)

Given this history, it's easy to understand why fanatical devotees gravitate to unorthodox approaches to fusion energy, be they [cold-fusion moonbattery](http://www.infinite-energy.com/) or schemes [touted by startup](http://investing.businessweek.com/research/stocks/private/snapshot.asp?privcapId=2113506) [companies with more cash](http://lawrencevilleplasmaphysics.com/index.php?option=com_content&view=article&id=61&Itemid=79) than brains. The mainstream scientists who've been pursuing the dream have left us with little more than a thicket of delusions and broken promises. And, if one is to believe them now, after six decades of work, the clean, nearly limitless power of fusion is still 20 years away. **At this rate, it will always be**.

### Colonization Defense

#### Space colonization *won’t* prevent extinction—dependent on Earth and susceptible to superintelligence.

Anissimov 8 — Michael Anissimov, science and technology writer focusing specializing in futurism, founding director of the Immortality Institute—a non-profit organization focused on the abolition of nonconsensual death, member of the World Transhumanist Association, associate of the Institute for Accelerating Change, member of the Center for Responsible Nanotechnology's Global Task Force, 2008 (“We Are in Trouble,” *Accelerating Future*—Michael Anissimov’s futurism blog, September 22nd, Available Online at http://www.acceleratingfuture.com/michael/blog/2008/09/we-are-in-trouble/, Accessed 09-09-2011)

Space stations or lunar settlements **won’t help mankind avoid numerous types of extinction risks**. This is because 1) any colony would remain **near-completely dependent on Earth** unless very large and in possession of advanced nanotechnology, and 2) the greatest danger, from superintelligence, could **easily reach its long arm into space** and **crush any human colony** if it wanted to. This is **not a challenge we can run away from**. We have to stay here and fix it. **Space will not swoop down and save the day**.

#### We can survive here on Earth

Williams 10 **–** (Lynda, M.S. in Physics and a physics faculty member at Santa Rose Junior College, “Irrational Dreams of Space Colonization,” Peace Review: A Journal of Social Justice, 22.1, Spring, pg 7-8)

According to scientific theory, the destruction of Earth is a certainty. About five billion years from now, when our sun exhausts its nuclear fuel, it will expand in size and envelope the inner planets, including the Earth, and burn them into oblivion. So yes, we are doomed, but we have 5 billion years, plus or minus a few hundred million, to plan our extraterrestrial escape. The need to colonize the Moon or Mars to guarantee our survival based on this fact is not pressing. There are also real risks due to collisions with asteroids and comets, though none are of immediate threat and do not necessitate extraterrestrial colonization. There are many Earth-based technological strategies that can be developed in time to mediate such astronomical threats such as gravitational tugboats that drag the objects out of range. The solar system could also potentially be exposed to galactic sources of high-energy gamma ray bursts that could fry all life on Earth, but any Moon or Mars base would face a similar fate. Thus, Moon or Mars human based colonies would not protect us from any of these astronomical threats in the near future.

### Turn—Disease

#### Space colonization leads to rapid growth of incurable diseases—extinction

Wickramasinghe 10 (Chandra, Ph.D., Centre for Astrobiology, Cardiff University, UK; Journal of Cosmology, “Are Intelligent Aliens a Threat to Humanity? Diseases (Viruses, Bacteria) From Space”, May 2010, http://journalofcosmology.com/Aliens106.html)

The real risk to humanity of alien life may be in the form of viral and bacterial genomes arriving at the Earth which are sometimes pathogenic (Joseph and Wickramasinghe 2010). Fred Hoyle and the present author have argued the thesis of “Diseases from Space” over several decades (Hoyle and Wickramasinghe, 1979, 1982, 1990; Hoyle et al, 1985; Wickramasinghe et al, 2003). Despite criticisms that have often been made against this concept the basic arguments remain cogent to the present day (Joseph and Wickramasinghe 2010). With increasing evidence to support the view that life could not have arisen indigenously on the Earth, the idea that the evolution of life is modulated by genes arriving from comets has acquired a new significance. Darwinian evolution operates in an open system where new genes continue to be added from a cosmic source. Pandemics of viral and bacterial disease become an inevitable part of this thesis. One could argue that if not for such genetic additions from outside, evolution would have come to a standstill a long time ago (Hoyle and Wickramasinghe, 1982; Joseph and Wickramasinghe 2010). In this context it should be noted that the human genome has recently been found to contain more than 50 percent of its content in the form of well defined inert viral genes. It is possible to understand this data if our ancestral line of descent over a few million years had suffered a succession of near-culling events following outbreaks of viral pandemics (Joseph and Wickramasinghe 2010). On each such occasion only a small breeding group survived the members of which had assimilated the virus into their reproductive line. Hoyle and the present author have cited numerous instances from the history of medicine where outbreaks of pandemic disease could be elegantly explained in terms of space incident viruses. Even the modern scourge of influenza is likely to be driven by periodic injections of genetic components from space. Aspects of the epidemiology of influenza otherwise remains difficult to explain (Hoyle and Wickramasinghe, 1979, 1991). In conclusion, we note that the aliens we have to fear are not superintelligent creatures arriving in space ships and intending to conquer and subdue us, but sub-micron sized viral invaders that may threaten the very existence of our species.

## \*\*\* 1NR

### 2NC---Overview

**DA outweighs the case—**

**Escalation is highly probable.**

**Geller 5** [Daniel S.—Professor and Chair of the Department of Political Science at Wayne State University, The India-Pakistan Conflict: An Enduring Rivalry, Ed. T. V. Paul, p. 99]

In fact, both the May-July 1999 military engagement between India and Pakistan over Kashmir and the crisis of December 2001-June 2002 after the terrorist attack on the Indian Parliament mirrored the conflict escalation pattern for nuclear-armed states. Each side initiated troop mobilization and general military alerts, coupled with the evacuation of civilians from border-area villages. However, the outcome of the future confrontations for India and Pakistan may not adhere to the pattern established by other nuclear dyads. Elements are present in this dyad that were largely absent between other nuclear-armed antagonists and that make the **escalation of war** **more probable**. Among those factors are the presence of a contiguous border between India and Pakistan, a history of multiple wars, and an ongoing territorial dispute. These factors, among others,79 **increase the likelihood** that an Indo-Pakistani dispute will turn violent and that the violence will escalate to war **irrespective of the presence of nuclear weapons**.

**Will be nuclear.**

**Raghavan 1** [Fall-Winter 2001, Lieutenant General V. R.—former Director General of Military Operations for India, Limited War and Nuclear Escalation in South Asia, The Nonproliferation Review, p. 1]

The status of India and Pakistan as declared nuclear powers with growing nuclear arsenals has raised the **risks of a nuclear exchange** between them, if the two countries engage in a large military conflict. The political leadership in both countries does not seem to have **fully grasped the implications of nuclear weapons** in relation to the ongoing conflict in Jammu and Kashmir. This conflict could lead to a limited war, as it has triggered three wars in the past. The risks involved in fighting a limited war over the Kashmir issue and the potential for such a war to escalate into a nuclear exchange are at best inadequately understood, and at worst brushed aside as an unlikely possibility. Despite this official stance, however, a close examination of Indian and Pakistani military and nuclear doctrine reveals elements that could contribute to the **rapid escalation** of a limited war to **include nuclear weapons**. Strikingly, India and Pakistan have not revealed warfighting doctrines for the post-1998 condition of nuclear weapons readiness. It is not clear, for example, what threats to its security would compel India to declare a state of war with Pakistan. There is also no indication of the circumstances that would induce Pakistan to seek a larger war with India. The political objectives that a limited war might seek to achieve have also not been articulated in official and public discourse in the two countries. This article examines the possibility of limited war between India and Pakistan, and the potential of such a conflict triggering a nuclear war. It examines the considerations that could push each of the two countries to fight a limited war. It discusses how such a war might be waged and the circumstances that would likely precipitate an escalation to a nuclear exchange. The doctrinal beliefs and decisionmaking processes of the two countries are examined to trace the likely escalatory spiral towards a nuclear war. The article concludes that the probability of a nuclear war between India and Pakistan is **high** in the event the two countries engage in a direct military conflict.

**Reform boosts Chinese economic growth—solves global nuclear wars**

**Kaminski 7** [Antoni Z., Professor—Institute of Political Studies, “World Order: The Mechanics of Threats (Central European Perspective)”, Polish Quarterly of International Affairs, 1, p. 58]

As already argued, the economic advance of China has taken place with relatively few corresponding changes in the political system, although the operation of political and economic institutions has seen some major changes. Still, tools are missing that would allow the establishment of political and legal foundations for the modem economy, or they are too weak. The tools are efficient public administration, the rule of law, clearly defined ownership rights, efficient banking system, etc. For these reasons, many experts fear an economic crisis in China. Considering the importance of the state for the development of the global economy, the crisis would have serious global repercussions. Its political ramifications could be no less dramatic owing to the special position the military occupies in the Chinese political system, and the existence of many potential vexed issues in East Asia (disputes over islands in the China Sea and the Pacific). A potential hotbed of conflict is also Taiwan's status. Economic recession and the related destabilization of internal policies could lead to a political, or even military crisis. The likelihood of the **global escalation** of the conflict is high, as the interests of Russia, China, Japan, Australia and, first and foremost, the US clash in the region.

**And US economic growth.**

**Beadle 12/10/12**—Reporter/Blogger at ThinkProgress.org [Amanda Peterson Beadle, Top 10 Reasons Why The U.S. Needs Comprehensive Immigration Reform, http://thinkprogress.org/justice/2012/12/10/1307561/top-10-reasons-why-the-us-needs-comprehensive-immigration-reform-that-includes-a-path-to-citizenship/?mobile=nc]

The nation needs a comprehensive immigration plan, and it is clear from a recent poll that most Americans support reforming the U.S.’s immigration system. In a new poll, nearly two-thirds of people surveyed are in favor of a measure that allows undocumented immigrants to earn citizenship over several years, while only 35 percent oppose such a plan. And President Obama is expected to “begin an all-out drive for comprehensive immigration reform, including seeking a path to citizenship” in January.

Several top Republicans have softened their views on immigration reform following November’s election, but in the first push for reform, House Republicans advanced a bill last month that would add visas for highly skilled workers while reducing legal immigration overall. Providing a road map to citizenship for the millions of undocumented immigrants living in the U.S. would have sweeping benefits for the nation, especially the economy.

Here are the top 10 reasons why the U.S. needs comprehensive immigration reform:

1. Legalizing the 11 million undocumented immigrants in the United States would **boost the** nation’s **economy**. It would add a cumulative $1.5 trillion to the U.S. gross domestic product—**the largest measure of economic growth—over 10 years.** That’s because immigration reform that puts all workers on a level playing field would create a virtuous cycle in which legal status and labor rights exert upward pressure on the wages of both American and immigrant workers. Higher wages and even better jobs would translate into increased consumer purchasing power, which would benefit the U.S. economy as a whole.

**2. Tax revenues would increase.** The federal government would accrue $4.5 billion to $5.4 billion in additional net tax revenue over just three years if the 11 million undocumented immigrants were legalized. And states would benefit. Texas, for example, would see a $4.1 billion gain in tax revenue and the creation of 193,000 new jobs if its approximately 1.6 million undocumented immigrants were legalized.

**3. Harmful state immigration laws are damaging state economies**. States that have passed stringent immigration measures in an effort to curb the number of undocumented immigrants living in the state have hurt some of their key industries, which are held back due to inadequate access to qualified workers. A farmer in Alabama, where the state legislature passed the anti-immigration law HB 56 in 2011, for example, estimated that he lost up to $300,000 in produce in 2011 because the undocumented farmworkers who had skillfully picked tomatoes from his vines in years prior had been forced to flee the state.

**4.** A path to citizenship **would help families access health care**. About a quarter of families where at least one parent is an undocumented immigrant are uninsured, but undocumented immigrants do not qualify for coverage under the Affordable Care Act, leaving them dependent on so-called safety net hospitals that will see their funding reduced as health care reforms are implemented. Without being able to apply for legal status and gain health care coverage, the health care options for undocumented immigrants and their families will shrink.

5. U.S. employers need a legalized workforce. Nearly half of agricultural workers, 17 percent of construction workers, and 12 percent of food preparation workers nationwide lacking legal immigration status. But business owners—from farmers to hotel chain owners—benefit from reliable and skilled laborers, and a legalization program would ensure that they have them.

6. In 2011, immigrant entrepreneurs were responsible for more than one in four new U.S. businesses. Additionally, immigrant businesses employ one in every 10 people working for private companies. Immigrants and their children founded 40 percent of Fortune 500 companies, which collectively generated $4.2 trillion in revenue in 2010—more than the GDP of every country in the world except the United States, China, and Japan. Reforms that enhance legal immigration channels for high-skilled immigrants and entrepreneurs while protecting American workers and placing all high-skilled workers on a level playing field will promote economic growth, innovation, and workforce stability in the United States.

7. Letting undocumented immigrants gain legal status would keep families together. More than 5,100 children whose parents are undocumented immigrants are in the U.S. foster care system, according to a 2011 report, because their parents have either been detained by immigration officials or deported and unable to reunite with their children. If undocumented immigrants continue to be deported without a path to citizenship enabling them to remain in the U.S. with their families, up to 15,000 children could be in the foster care system by 2016 because their parents were deported, and most child welfare departments do not have the resources to handle this increase.

8. **Young undocumented immigrants would add billions to the economy if they gained legal status.** Passing the DREAM Act—legislation that proposes to create a roadmap to citizenship for immigrants who came to the United States as children—would put 2.1 million young people on a pathway to legal status, adding $329 billion to the American economy over the next two decades.

9. And DREAMers would boost employment and wages. Legal status and the pursuit of higher education would create an aggregate 19 percent increase in earnings for young undocumented immigrants who would benefit from the DREAM Act by 2030. The ripple effects of these increased wages would create $181 billion in induced economic impact, 1.4 million new jobs, and $10 billion in increased federal revenue.

10. Significant reform of the high-skilled immigration system would benefit certain industries that require high-skilled workers. Immigrants make up 23 percent of the labor force in high-tech manufacturing and information technology industries, and immigrants more highly educated, on average, than the native-born Americans working in these industries. For every immigrant who earns an advanced degree in one of these fields at a U.S. university, 2.62 American jobs are created.

**Global WMD wars.**

**Kemp 10** (Geoffrey, Director of Regional Strategic Programs at The Nixon Center, served in the White House under Ronald Reagan, special assistant to the president for national security affairs and senior director for Near East and South Asian affairs on the National Security Council Staff, Former Director, Middle East Arms Control Project at the Carnegie Endowment for International Peace, 2010, *The East Moves West: India, China, and Asia’s Growing Presence in the Middle East*, p. 233-4)

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

**1NR—Will Pass**

**AND—here’s our framing issue—Capital insures the best bill possible and gets something passed. The more he has the better**

**Dallas Morning News 1/2/13** [Editorial: Actions must match Obama’s immigration pledge, p. http://www.dallasnews.com/opinion/editorials/20130102-editorial-actions-must-match-obamas-immigration-pledge.ece]

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

**Has momentum**

**Grant 12/28**/2012 [David, Immigration reform: Is 'amnesty' a possibility now?, Christian Science Monitor, 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. 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**.

**GOP will compromise**

**Financial Times 1/2/13** [White House builds immigration pact, p. http://www.ft.com/intl/cms/s/0/e6b2805c-4ac9-11e2-929d-00144feab49a.html#axzz2GrNoEPIS]

As they try to avoid further alienating the US’s fastest growing demographic, Republicans are **eager to deal** with the issue of immigration reform and get it off the table before the 2014 midterm elections. **That could help its passage through Congress** and help repair relations following Mr Romney’s presidential bid. “This was a big mistake from the start of the Republican primaries, when the candidates had very ugly positions and antagonised Latinos,” said Alfonso Aguilar, executive director of the Latino Partnership for Conservative Principles and an influential Republican voice on immigration. “Now we’ve got to get back to the principles of George W. Bush and reclaim this issue,” he said, referring to the former president’s relatively open approach to immigration. In a Latino Decisions poll taken on the eve of the election, 31 per cent said they would be more likely to vote Republican if the Republican party took a leadership role in supporting comprehensive immigration reform with an eventual pathway to citizenship for undocumented immigrants.

**AT: Thumpers**

**Immigration is before economic issues—including budget battles**

**York, 1/2/13** [Byron, For Obama, the Economy Never Comes First, Town Hall, http://townhall.com/columnists/byronyork/2013/01/02/for-obama-the-economy-never-comes-first-n1477781]

Many Republicans have accused Barack Obama of ignoring the economy. That's not true. The problem with Obama is not that he has ignored the economy, but that it was **never his top priority** in his first term as president, even as millions of Americans suffered the consequences of a devastating economic downturn. Now, with many still struggling, we know the economy won't be Obama's top concern in his second term, either. On “Meet the Press” on Sunday, when the president was asked to name his top priority for the next four years, **he first listed immigration reform**. “That's something we should get done,” Obama said. The economy came after that, as the president continued: “The second thing that we've got to do is to stabilize the economy and make sure it's growing.” Obama's third priority for his new term is to manage the explosion in U.S. energy production “in a way that also deals with some of the environmental challenges that we have.” Given that the energy revolution -- fracking and the discovery of huge new sources of gas and oil -- is a key driver of economic growth, Obama's third priority is, in effect, to put the brakes on his second priority. During Obama's first term, when economic conditions bordered on desperate, Republicans often criticized him for putting the economy behind other concerns, most notably national health care. Indeed, the president and Democrats sometimes conceded the criticism when they talked about making a “pivot” to the issue of jobs and the economy from whatever policy pursuit Obama felt was more important at the time. When the time came to run for re-election, Obama finally started talking about the economy -- a lot. He talked about it, and why his economic plan was superior to Mitt Romney's, so much that audiences might well have come away with the impression that economic recovery was the president's top second-term priority. Turns out they would have been wrong. At the same time, even though Obama has long said he wants to pursue immigration reform, he didn't talk about it much in his standard stump speech. In fact, in the speech he used in the final days of the campaign, Obama didn't talk about immigration reform at all, unless one counts his accusation that Republicans want to “turn back the clock 50 years for women, and for immigrants, and for gays.” But now, it's immigration reform **first**, the economy **second**.

**Other issues don’t thump**

**Foley & Stein 1/2/13**—Huffington Post Staff [Elise Foley & Sam Stein, Obama's Immigration Reform Push To Begin This Month, http://www.huffingtonpost.com/2013/01/02/obama-immigration-reform\_n\_2398507.html]

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.

The timeframe is likely to be cheered by Democrats and immigration reform advocates alike, who have privately expressed fears that Obama's second term will be drowned out in seemingly unending showdowns between parties. The just-completed fiscal cliff deal is giving way to a two-month deadline to resolve delayed sequestration cuts, an expiring continuing resolution to fund the government and a debt ceiling that will soon be hit.

### Agency

**The controversy of the plan overwhelms the agency that implements it.**

**Bryner 2** Research Associate, Natural Resources Law Center, University of Colorado School of Law, and Professor, Public Policy Program, Brigham Young University

(Gary C., *The National Energy Policy: Assessing Energy Policy Choices*, University of Colorado Law Review, Spring, 2002, 73 U. Colo. L. Rev. 341)

B. Congress and Energy Policy

Many of the recommendations in the Bush energy plan had already been proposed in bills introduced by members of Congress. A flurry of energy related bills were introduced early in the 107th Congress, in response to the problems in meeting demand in California, as well as in anticipation of the Bush administration's effort to develop a national energy policy. Republican and Democratic leaders both introduced omnibus bills; a number of bills addressing specific issues were also proposed. The energy plan's recommendations thus compete with [\*352] a host of congressional initiatives. While much of the energy plan can be pursued unilaterally by the executive branch, many of the most controversial proposals, **even if pursued by federal agencies**, will require congressional action. Throughout 2001, the Bush administration was unable to get Congress to enact key provisions of the plan.

On February 26, 2001, Senate Republicans, led by Energy and Natural Resources Chair Frank Murkowski (R-Alaska), introduced an omnibus energy bill primarily aimed at expanding energy production and reducing United States' dependence on imported oil from fifty-six percent, the current figure, to fifty percent, by 2011. n55 The bill included many of the provisions that eventually surfaced in the Bush energy plan, such as opening ANWR for exploration and drilling, encouraging nuclear power, expanding transmission lines, repealing public utility regulatory programs, transferring some of the authority over oil and gas leases on public lands to state governments, and funding clean coal technologies, energy conservation, and renewable energy programs. n56

Senators Jeff Bingaman (D-N.M.) and then Minority Leader Tom Daschle (D-S.D.) countered with the Democratic bill that emphasized conservation, energy efficiency, and renewable energy more than drilling for new sources. n57 This bill proposed the following actions. It (1) encouraged the construction of a natural gas pipeline from Prudhoe Bay in Alaska to the lower forty-eight states; (2) ordered federal agencies to ensure that total petroleum consumption by cars and light trucks not increase by more than five percent between 2000 and 2008; (3) required federal vehicle fleets to use alternative fuels to meet half their needs by 2003; (4) required federal agencies to purchase three percent of their electricity from renewable sources in 2002 and seven and a half percent by 2010; and (5) established new tax credits for investments in renewable energy [\*353] technologies and more fuel-efficient, coal-fired electricity production. n58

### AT: Winners Win

Energy policies overload the agenda.

Mann 9 Senior Fellow in Governance Studies at Brookings

(Thomas E., “From Campaigning to Governing: Politics and Policymaking in the New Obama Administration”)

New presidents who get off to a good start almost always have agenda control. They **focus** on a limited number of issues, keep extraneous matters from stepping on their priorities, and avoid overloading the circuits in Congress. Carter sent a flood of proposals to Capitol Hill with little concern for priority or sequencing. He reaped little in the way of legislative harvest from them and the public began to wonder if he was up to the job. Reagan focused relentlessly on cutting taxes and spending, ultimately succeeding in shifting policy for decades. Clinton allowed the issue of gays in the military to overwhelm his policy priorities at the outset of his administration and then misjudged the market for a small economic stimulus in the Senate and suffered a humiliating defeat. Obama identified stabilizing the financial markets and shortening the recession as his highest initial priority. His early efforts to ensure the release of $350 billion in TARP funds, pass a large economic stimulus bill, and develop a new strategy for dealing with the troubled banking system reflected that priority. Nonetheless, he was widely criticized for diluting his focus on economic crisis management by **linking it to** reform of health policy, energy and education. Critics argued that his economic recovery leadership and proposals were not up to the seriousness of the crisis, that the staggering costs of the recession and bailout made health, energy and education reform **wildly unrealistic**, and that his huge agenda would overwhelm the **capacity of Congress** to deliver on its central components. Obama insisted that the linkage was essential to long-term economic security and prosperity and refused to back down. At his insistence, the stimulus bill contained very generous allocations for health technology, renewable energy and education.

**Replenishment takes too long.**

**Lashof 10** Director of the Climate Center at NRDC

(Dan, “Coulda, Shoulda, Woulda: Lessons from Senate Climate Fail”, http://switchboard.nrdc.org/blogs/dlashof/coulda\_shoulda\_woulda\_lessons.html)

Lesson 2: Political capital is **not** necessarily a renewable resource.

Perhaps the most fateful decision the Obama administration made early on was to move healthcare reform before energy and climate legislation. I’m sure this seemed like a good idea at the time. Healthcare reform was popular, was seen as an issue that the public cared about on a personal level, and was expected to unite Democrats from all regions. White House officials and Congressional leaders reassured environmentalists with their theory that success breeds success. A quick victory on healthcare reform would renew Obama’s political capital, some of which had to be spent early on to push the economic stimulus bill through Congress with no Republican help. Healthcare reform was eventually enacted, but only after an exhausting battle that eroded public support, drained political capital and created the Tea Party movement. Public support for healthcare reform is slowly rebounding as some of the early benefits kick in and people realize that the forecasted Armageddon is not happening. But this is occurring **too slowly to rebuild** Obama’s political capital in time to help push climate legislation across the finish line.

### AT: PC Irrelevant

#### Political scientists and experts agree it’s relevant.

**Beckman 10** Professor of Political Science @ UC-Irvine

(Matthew N., 2010, “Pushing the Agenda: Presidential Leadership in U.S. Lawmaking, 1953-2004,” pg. 50)

However, many **close observers** of the presidential–congressional relationship have long cited pre-voting bargaining across Pennsylvania Avenue as being **substantively important**. For example, discussing President Eisenhower’s legislative record in 1953, CQ staffers issued a caveat they have often repeated in the years since:¶ The President’s leadership often was tested beyond the glare spotlighting roll calls. . . . Negotiations off the floor and action in committee sometimes are as important as the recorded votes. (CQ Almanac 1953, 77)¶ **Many a political scientist has agreed**. Charles Jones (1994), for one, wrote, “However they are interpreted, roll call votes cannot be more than they are: one form of floor action on legislation. If analysts insist on scoring the president, concentrating on this stage of lawmaking can provide no more than a partial tally” (195). And Jon Bond and Richard Fleisher (1990) note that even if they ultimately are reflected in roll-call votes, “many important decisions in Congress are made in places other than floor votes and recorded by means other than roll calls . . . ” (68).

### 2NC—Nuclear

**Nuclear debates are polarizing.**

**Schmid 11** Assistant professor in Science and Technology Studies at Virginia Tech

Ross Carper (rosscarper@gmail.com), a writer based in Washington state, is the founding editor of the creative nonfiction project BeyondtheBracelet.com. Sonja Schmid (sschmid@vt.edu) is an assistant professor in Science and Technology Studies at Virginia Tech. “The Little Reactor That Could?” Issues in Science and Technology, http://www.issues.org/27.4/carper.html

Historically, nuclear energy has been entangled in **one of the most polarizing debates in this country**. Promoters and adversaries of nuclear power alike have accused the other side of oversimplification and exaggeration. For today’s industry, reassuring a **wary public** and nervous government regulators that **small reactors are completely safe** might not be the most promising strategy. People may not remember much history, but they usually do **remember who let them down before**. It would make more sense to admit that nuclear power is an inherently risky technology, with enormous benefits that might justify taking these risks. So instead of framing small reactors as qualitatively different and “passively safe,” why not address the risks involved head-on? This would require that the industry not only invite the public to ask questions, but also that they respond, even—or perhaps especially—when these questions cross preestablished boundaries. Relevant historical experience with small compact reactors in military submarines, for example, should not be off limits, just because information about them has traditionally been classified.

**Renewable energies spark massive congressional backlash.**

**Macneil 12** Professor at the University of Sydney

(Robert, Alternative climate policy pathways in the US, Climate Policy, Volume No. 10 Sep 2012)

The election of Barack Obama in November 2008 to the Presidency of the US (along with strengthened majorities in both its House and Senate) led many in both the mainstream and academia to cautiously speculate that perhaps the country's hitherto woeful performance on climate-related issues might finally take a turn for the better (e.g. Bomberg and Super, 2009; Matisoff, 2010).1 Indeed, even those analysts who were rather skeptical of the ability of the US to play a leading role in the international climate change negotiations after 2008 emphasized the likelihood that, at the very least, Washington would pass a comprehensive domestic programme featuring the country's most important contribution to contemporary climate policy: a national market for GHG emissions trading (e.g. Paterson, 2009). As with all the serious contenders for the Democratic presidential nomination, Obama had campaigned for the need to enact comprehensive climate legislation. A mere 5 weeks into his first term, he had already requested, in a speech before a joint session of Congress, that a system-wide bill be delivered to him to sign as soon as possible. With large Democratic majorities in both houses, it appeared that the US was indeed all but certain to finally turn over a new leaf on climate and establish the type of emissions trading market that it had sold to the rest of the world a decade earlier at Kyoto. Yet, even the most ostensibly advantageous and progressive legislative dynamic in a quarter of a century proved fruitless, as the famed Senate sister bill of Waxman–Markey (formally known as the American Clean Energy and Security Act of 2009, H.R. 2454) – the Kerry-Boxer Bill (formally known as the Clean Energy Jobs and American Power Act of 2009, S. 1733) – promptly died in the upper chamber with (as noted in Economist, 2010) ‘**barely the bathos of a whimper’**. Soon after the Republican-dominated 112th House of Representatives rose to power in January 2011, the President stated publicly that such a bill would be unlikely to win passage until 2013 at the earliest. While the factors that led to the death of the bill are often described in fairly idiosyncratic terms – typically blamed on the Democrats’ relative lack of political capital following the debates over healthcare, the stimulus bill, and the auto sector bailout, for example (see Pooley, 2010) – the actual root causes are considerably more structural and complex and stem, inter alia, from **the broad nature of energy production** and consumption in the US, the emergence of environmentalism as an intensely partisan ‘wedge issue’ over the past three decades, the nature of the Democratic Party's contemporary electoral coalition, and the uniquely prohibitive nature of the legislative process in Washington. From this perspective (to be further discussed below), the US administration's request that such a programme be passed legislatively looks like a fool's errand (or, at least, an extremely optimistic view of the legislative situation), with an exceptionally low probability of success.